

**ANNUAL ADMINISTRATIVE REPORT (FY2004) AND
WORK PLAN (FY 2005) FOR INVENTORIES AND VITAL SIGNS MONITORING**

EASTERN RIVERS AND MOUNTAINS NETWORK

Includes: New River Gorge National River, Bluestone National Scenic River, Gauley River National Recreation Area, Johnstown Flood National Memorial, Fort Necessity National Battlefield, Friendship Hill National Historic Site, Upper Delaware Scenic and Recreational River, Delaware Water Gap National Recreation Area, and Allegheny Portage Railroad National Historic Site.

Eastern Rivers and Mountains Network Approval Signatures

_____ Signatory, Network Board of Directors (John Karish, NER Chief Scientist)	_____ Date
_____ Elizabeth Johnson, Regional Inventory and Monitoring Coordinator, Northeast Region	_____ Date
_____ Prepared by: Matt Marshall, Eastern Rivers and Mountains Network Coordinator	_____ Date

	<u>Budget program (MS Access, aarwp_budget.mdb)</u>
X	The income amounts entered for Biological Inventories, Vital Signs Monitoring, Prototype \$\$ - Annual Transfer, Water Quality Monitoring and other sources matches the dollar amounts from the memos sent to the regions/networks by WASO (have you used the correct income amounts?).
X	In the Add/Edit Budget Records form, the amount shown for Total Expenses matches that for Total Income. (If it doesn't, enter a record under Expenses in the 7_Other category to make it balance; use an entry such as 'Unexpended funds' or 'Overspent Funds' in the Description column to explain the amount.)
X	For all Expense records, the Description field includes the name of the university, agency, company, or other vendor to help us document our outsourcing efforts. (If this expense involved a contract, cooperative agreement, interagency agreement, or other partnership, is it clear where the money went?)
X	For all Expense records, the correct item from the picklist for 'Where \$\$ Went' has been entered. [Think about who the check was written to; e.g., enter 'Other Non-Federal' for funding that went directly to the private sector, such as for purchases (computers, supplies, etc.), travel (airlines, rental cars, hotels).]
X	On the Status of Biological Inventories form, there is one record for each inventory that is described in the text section of the AARWP or in the budget program. Be sure to list each park that was involved in the particular inventory.
X	Each year's budget has been exported as an .rtf file (one for FY 2004 and one for FY 2005), and both files have been inserted into MS Word at the end of the AARWP document.
X	The file aarwp_budget.mdb has been renamed to include the 4-character network alpha code and the years, as shown in this example: NCCN_FY0405_aarwp.mdb
	<u>Annual Report and Work Plan (MS Word)</u>
X	I have carefully read the guidance for the AARWP and followed it.
X	A header or footer with the date that the aarwp was last revised has been included.
X	I gave special attention to the 'Public Interest Highlights' and 'Major Accomplishments' sections of the report. (We need good examples of the successes, applications, and highlights of the program to help us obtain funding for all 32 networks! Your 'Major Accomplishments' section is what we'll use for the I&M Program's annual Report to Congress to justify the funding spent by your network.)
X	In the 'Status of Park Vital Signs Monitoring' table, all entries are equal to or greater than the entries in last year's report.
NA	Photographs that might be included in one of the reports to Congress, brochures, websites, or other materials that help the program have been submitted by the network. (See the photo database and guidelines for submitting photographs.)
X	The aarwp file has been renamed using the network's 4-character alpha code and the years (FY0405) as in the example NCCN_FY0405_aarwp.doc
X	The annual report has been approved by the appropriate individuals, per my region's procedures. (If you cannot get electronic signatures, it is okay to submit a hard copy with signatures after November 8.)
X	I have followed my region's procedures for submitting the two files (e.g., NCCN_FY0405_aarwp.doc and NCCN_FY0405_aarwp.mdb). (Most regions require you to submit the files through the regional office. The files may be zipped into a zip file if desired, and then submitted to Steven Fancy via either email or ftp).
	<u>Review of FY 2005 Work Plan by WASO</u>
No	[Enter Yes or No]: Has the FY 2005 workplan been approved by the network Board of Directors, and therefore ready for the full WASO review? (If you enter No, the WASO I&M and WRD offices will only briefly review the work plan for 'red flags'.

I. OVERVIEW AND OBJECTIVES

The Eastern Rivers and Mountains Network (ERMN) includes nine parks located in four states: New York, New Jersey, Pennsylvania, and West Virginia. A segment of the Appalachian Trail passes through the ERMN, but trail activities associated with the Inventory and Monitoring Program are currently coordinated by the Northeast Temperate Network. The ERMN parks range in size from approximately 66 to 30,000 hectares and generally consist of a mosaic of forested hillsides and floodplains, streams and rivers, tallus slopes and cliffs, vernal pools and wetlands, open fields and agriculture. The river parks contain some of the most significant water resources and water-based recreational activities in the National Park system. These parks are not immune to a variety of natural and anthropogenic disturbances that affect, or have the potential to affect, park resources. Knowing the condition of natural resources and potential stressors is fundamental to protecting and managing National Park Service lands. Scientifically credible data are necessary to make decisions and support management actions. The purpose of the Inventory and Monitoring Program is to develop broadly based, scientifically sound information on the current status and long-term trends in the composition, structure and function of park ecosystems.

As part of the accountability system of the Inventory and Monitoring Program, submission of a detailed Annual Administrative Report and Work Plan (AARWP) to the National Program office is required. Approval of the AARWP by the Network's Board of Directors is also required. Review of this document is a primary means by which Network parks can remain current, track progress, and maintain oversight of the ERMN Inventory and Monitoring Program.

Projects that are ongoing in the Network include compiling and entering existing and legacy data into the three WASO databases (NPSpecies, NatureBib and the Dataset Catalog). Two research associates and one volunteer are working to complete legacy data entry for the Network. Numerous vertebrate and vascular plant inventories are being conducted in each park, and some aspect of the vegetation mapping effort is underway in all nine parks. Ongoing and newly initiated inventory projects are part of the FY0405 Administrative Report and Work Plan while planning and executing the ERMN Vital Signs Selection Workshop is the primary objective of the FY05 Workplan.

OBJECTIVES FOR INVENTORIES

1. Locate and catalog Network park natural resource documents, data sets, and spatial information and ensure such information is accurate, readily available, and entered into NPS databases.
2. Conduct inventories targeted at taxonomic groups that are below the service-wide goal of 90% verification, or are of special concern to Network parks.
3. Conduct other baseline inventories identified as important to Network parks and the Network Vital Signs program.

OBJECTIVES FOR VITAL SIGNS MONITORING

4. Hire and retain professional staff and secure office space and facilities.

5. Develop and maintain working and decision-making processes that engage the Board of Directors, Science Advisory Committee, technical staff, and managers of Network parks.
6. Summarize existing data, identify, and prioritize Vital Signs, then develop protocols and implement programs to monitor the Vital Signs.
7. Implement and maintain an integrated GIS and data management program (Note: this objective is placed under Vital Signs Monitoring, however, it is equally important and integrated with the Inventories portion of the program.).
8. Develop and maintain strategies to share information with Network parks, scientists, and others interested in the Network's I&M program, and to contribute to general management planning, educational programs, and learning centers for Network parks.

OBJECTIVES FOR WATER QUALITY MONITORING

9. Summarize existing data, identify and prioritize all aquatic indicators, and develop protocols and implement programs to monitor the Water Quality Vital Signs.

II. ACCOMPLISHMENTS (FY2004) AND SCHEDULED ACTIVITIES (FY2005)

A. INVENTORIES

OBJECTIVE 1 – Locate and catalog Network park natural resource documents, data sets, and spatial information and ensure such information is accurate, readily available, and entered into NPS databases

Task 1.1 – NPSpecies

Parks Involved: FONE FRHI ALPO JOFL DEWA UPDE NERI GARI BLUE

- **FY 2004 Accomplishments:** (1) Through an existing cooperative agreement with Penn State University, a research associate (Jennifer Keefer-NPSpecies Database Manager) continued to mine, convert and verify existing data in the Network's NPSpecies databases for (this position is shared between two Networks, the Mid-Atlantic and Eastern Rivers and Mountains). Existing records in NPSpecies were verified and corrected in association with the original hard copy documents. This included verifying each species with its associated reference, identifying species in the database not referenced and removing them, adding or removing documented common or scientific names, and adding location, abundance, and nativity information. Spelling errors are also being corrected, and any new data gathered in 2003/2004 entered. (2) A cooperative agreement with Penn State University was continued for a part-time research associate (Janice Lynch) to mine for data on vertebrates and vascular plants found at UPDE. This information was entered into NPSpecies. (3) Park staff at DEWA (Jeff Shreiner) continued to review and verify NPSpecies data. (4) Jennifer Keefer assisted Brad Ross, taxa expert, with certification of bird and mammal data at ALPO, JOFL, FONE, FRHI (5) Jennifer Keefer co-authored three unpublished NPSpecies documents: NPSpecies Data Entry Standards Manual, Data Certification Guide, and the Northeast Region Inventory and Monitoring Program NPSpecies Data Management Plan as well as edited and augmented "Appendix B: Species of Special Concern" for the ERMN Phase 1 Report.
- **Scheduled FY 2005 Activities and Products:** (1) Maintain the existing cooperative agreements to continue the data mining, entering and verification process for NPSpecies for

all Parks, and to centralize management of all Network NPSpecies related activities with the Network Data Manager at Penn State University. (2) Assist all Network parks in reviewing their park databases and in some cases hire taxonomic specialists to review NPSpecies for the Network. (3) Ensure that data collected under current cooperative agreements be entered into NPSpecies and other appropriate NPS databases.

Task 1.2 NatureBib

Parks Involved: FONE FRHI ALPO JOFL DEWA UPDE NERI GARI BLUE

- **FY 2004 Accomplishments:** Through a new cooperative agreement with Penn State University, a full-time research associate (Scott Tiffney) entered, updated and verified existing references in the NPS bibliographic database, NatureBib. This is a shared position between the four Northeast Region Networks. Scott Tiffney: (1) previously visited all parks to assess the status of parks' NatureBib databases and onsite collections, (2) has begun assessing the overall status of parks' NatureBib databases and will begin detailed editing of park databases, (3) is assessing NatureBib database records for duplication, spelling, authority control, data integrity and data comprehensiveness, (4) continued to receive and fulfilled NatureBib data requests from park personnel, government agencies, academic staff and students, researchers, and interested private citizens, and (5) completed a draft Northeast Region NatureBib Data Management Plan and a draft Northeast Region NatureBib Data Entry Manual
- **Scheduled FY 2005 Activities and Products:** (1) Maintain the existing cooperative agreements to ensure that NatureBib updating, editing and request fulfilling will continue at all Parks as needed. (2) Quarterly progress reports are due in November 2004, March 2005, and July 2005.

Task 1.3 Peer review and Certification process for biological inventory work

Parks Involved: FONE FRHI ALPO JOFL DEWA UPDE NERI GARI BLUE

- **FY2004 Accomplishments:** (1) An existing cooperative agreement with Penn State University was extended to provide funding to Dr. Richard Yahner to review incoming biological inventory data and reports for the ERM Network.
- **Scheduled FY 2005 Activities and Products:** (1) Agreement remains active for Dr. Yahner to review inventory reports. (2) Completed inventory projects and relevant taxa specific park NPSpecies databases will be certified.

OBJECTIVE 2 – Conduct inventories targeted at taxonomic groups that are below the service-wide goal of 90% verification, or are of special concern to Network parks.

Task 2.1 – Amphibian, Reptile and Mammal Inventories

Parks Involved: ALPO & JOFL

- **FY 2004 Accomplishments:** (1) A cooperative agreement was established with Dr. Richard Yahner at The Pennsylvania State University, College of Agricultural Sciences to inventory amphibian, reptile, and mammal species at ALPO and JOFL. The objectives of the project are (a) to review existing literature and documentation of the National Park Service and other sources and develop a database for historic and potential occurrence of amphibians, reptiles, and mammals at ALPO and JOFL; (b) to obtain a comprehensive inventory data set (based on 2 years) on amphibians, reptiles, and mammals at ALPO and JOFL; (c) to document

presence, relative abundance, and distribution of amphibians, reptiles, and mammals at ALPO and JOFL; and (d) to provide guidance for monitoring amphibians, reptiles, and mammals at FONE and FRHI in the future. (2) We surveyed amphibian and reptile populations between March - October 2004 using incidental observations and artificial cover object, visual-encounter, calling, general search, and pitfall trapping surveys. We detected 15 amphibian and 10 reptile species at ALPO. At JOFL, we documented 13 amphibian and seven reptile species. (3) We inventoried mammal populations between March - October 2004, using incidental observations and trapping and vehicular-road surveys. We detected 18 mammal species at ALPO, and we documented 16 mammal species at JOFL.

- **Scheduled FY 2005 Activities and Products:** (1) To complete the first year of inventories, they will continue to survey amphibians, reptiles and mammals at both parks through November 2004. They will begin the second year of the inventory project in March 2005 and conduct amphibian, reptile, and mammal surveys through early November 2005. (2) They will GPS sample locations during November 2004. (3) They will draft the final report for the inventory project.

Task 2.2 – Bird and Mammal Inventories

Parks Involved: FONE & FRHI

- **FY 2004 Accomplishments:** Dr. Richard Yahner and Brad Ross at The Pennsylvania State University completed the project to inventory bird and mammal species at FONE and FRHI. This research was published as a National Park Service Technical report in April 2004.
- **Scheduled FY 2005 Activities and Products:** None.

Task 2.3 – Bat Community Composition, Relative Abundance and Distribution

Parks Involved: NERI, GARI, & BLUE

- **FY 2004 Accomplishments:** A FY02 interagency agreement was established with W. Mark Ford at the USDA Forest Service and Dr. Steven Castleberry at the University of Georgia and to conduct a baseline inventory of bat community composition, relative abundance and distribution at NERI, BLUE and GARI. Field. FY2004 accomplishments include: (1) May 2004 – September 2004: Graduate research assistant used Anabat ultrasonic detectors to record bat echolocation calls at 410 discrete points in a variety of habitats throughout the three parks. (2) Over thirty nights of mist netting were performed to augment Anabat call recordings and to investigate the presence of *Corynorhinus* sp. In total, eighty one bats of nine species were captured in the survey. Species of interest included *Lasionycteris noctivagans*, *Myotis leibii* (lactating female), and *Lasiurus cinereus* (lactating female). (3) Site vegetation and landscape variables were collected for each sample point for use in building predictive models of species occurrence across the parks. (4) Anabat cliff line surveys were conducted during twenty nights at ten different sites to assess bat use (particularly *Myotis leibii*) of cliff lines.
- **Scheduled FY 2005 Activities and Products:** (1) Oct. 2004 – April 2005: Data collected in 2004 will be compiled and preliminary data analysis will be performed. Recorded echolocation calls will be identified to species, or the lowest taxon possible. An annual report will be submitted in December 2004. (2) May 2005 - Dec. 2005: Data from both years will be compiled and the final data analysis and preparation of a final report will begin.

Task 2.4 – Grassland Bird Inventory

Parks Involved: DEWA

- **FY 2004 Accomplishments:** (1) A FY02 cooperative agreement was established with East Stroudsburg University, Dr. Terry Master, to inventory grassland birds at DEWA. Field work began in the summer of 2002 and was completed in July 2003 by Terry Master and four of his graduate students. A draft final report entitled, "A Point Count Survey of Grassland Birds in the Delaware Water Gap National Recreation Area" has been submitted to DEWA and the ERMN office. The report provides analysis and summarizes the results of point count surveys conducted, primarily during June, of 2002 and 2003 in all appropriate grassland sites within DEWA. Grassland bird communities were found to be most sensitive to area, vegetation structure and the grass-forb ratio in that order. A future management plan for the park's open habitats is included in the final report.
- **Scheduled FY 2005 Activities and Products:** (1) Draft final report and database will be revised and submitted in 2005.

Task 2.5 – Wetland Bird Inventory

Parks Involved: DEWA

- **FY 2004 Accomplishments:** (1) A cooperative agreement was established with East Stroudsburg University, Dr. Terry Master, to inventory wetland birds at DEWA. The first of two planned field seasons was completed during early July 2004. One hundred five points were surveyed two times each, primarily during the month of June. Appropriate points were also surveyed nocturnally using a CD playback procedure modeled after the Marsh Bird Monitoring Protocol. One additional survey for Sedge Wrens (*Cistothorus platensis*) was conducted nocturnally at appropriate points in late July. Vegetation analysis and habitat photography were completed at two-thirds of the survey points.
- **Scheduled FY 2005 Activities and Products:** (1) Data from the 2004 field season are being entered into an ACCESS database currently. (2) Fieldwork will continue during of 2005. Points will be surveyed 2 more times diurnally and once more nocturnally, vegetation analysis and habitat photography will be completed, (3) data will be organized and analyzed and results presented in a final report to be submitted no later than December 31, 2005.

Task 2.6 – Fish Inventory

Parks Involved: NERI, GARI & BLUE

- **FY 2003 Accomplishments:** (1) A FY01 interagency agreement was established with Dr. Stuart Welsh, U.S. Geological Survey, West Virginia Cooperative Fish and Wildlife Research Unit, to inventory fish species in the mainstem and tributaries of NERI. (2) Park funds were used fund Dr. Welsh for a fish inventory of GARI. (3) A cooperative agreement was established with Dr. Stuart Welsh at West Virginia Cooperative Fish and Wildlife Research Unit to inventory fish species at BLUE using ERMN funds. As part of this agreement, the cooperative research unit will review existing distribution information and electronically compile current and historic fish distribution data for BLUE. Over 80% of fish inventories scheduled for 2004 have been completed. Historical records research and compilation is underway. Museum visits during winter 2004 are scheduled for validation of historic records relative to BLUE.
- **Scheduled FY 2004 Activities and Products:** (1) Draft and final inventory reports for NERI and GARI will be submitted and reviewed (2) A BLUE progress report on or before December 15, 2004 will provide details of fish inventory work during 2004 (3) After

additional review of existing data, the historic and current data of BLUE fish distributions will be compiled, and a final report will be submitted on or before May 31, 2005.

Task 2.7 – Reptile and Amphibian Inventory

Parks Involved: FONE & FRHI

- **FY 2004 Accomplishments:** (1) Continued effort was made to receive final report, data, and other deliverables from Dr. Brian K. Paulson at California University of PA for a previously funded project to inventory amphibians and reptiles and FONE and FRHI. A final report was received and reviewed by John Karish in Aug 2002 and returned to Dr. Paulson.
- **Scheduled FY 2005 Activities and Products:** (1) Revised final report, data, and other deliverables to be received from Dr. Paulson.

Task 2.8 – Current and Historic Vertebrate Inventory

Parks Involved: NERI, GARI & BLUE

- **FY 2004 Accomplishments:** (1) Through a combination of Park and ERMN funds, Drs. Thomas Pauley and Mark Watson of Marshall University finished the final year of inventory work at GARI and continued to populate appropriate databases with current and historic vertebrate data for NERI, GARI and BLUE.
- **Scheduled FY 2005 Activities and Products:** (1) Receive and review all deliverables following I&M specifications for Marshall University databases and spatial components.

Task 2.9 – Fish Inventory

Parks Involved: DEWA & UPDE

- **FY 2004 Accomplishments:** (1) A cooperative agreement was established with the Academy of Natural Sciences of Philadelphia, Dr. Richard Horwitz and Paul Overbeck, to conduct a fish inventory of species of concern at DEWA and UPDE. They: (1) completed administrative startup of the project; (2) Prepared a sampling frame for the study area; (3) Prepared a sampling list by random selection within strata of the sampling frame; (4) In conjunction with NPS staff, conducted a startup meeting in April, 2004, with representatives of various agencies and groups to present sampling plans and sites and solicit information on fish species in the study area; (5) Compiled existing information on fish occurrence in the study area; (6) Revised the base taxa list based on the existing information. (7) Sampled 9 lakes and 5 ponds in DEWA; (8) Conducted backpack electroshocking sampling of three stream reaches in DEWA; (9) Sampled 6 of the study reaches in the mainstem Delaware River in UPDE and 4 reaches in DEWA; (10) Received GIS data from NPS and started a GIS project for the study. Up through September 15, 45 species have been documented in DEWA and at least 39 in UPDE, representing 74% of species previously reported from each of the areas. Three species not previously reported in UPDE were collected in that park.
- **Scheduled FY 2005 Activities and Products:** (1) Additional funds will be allocated to increase sampling intensity (2) Field sampling will be conducted in October, 2004, and will start again in the spring of 2005; (3) Laboratory identifications will be completed and data will be entered in appropriate databases; (4) Database information will be transferred to the appropriate NPS databases; (5) A final report will be prepared; (6) voucher material will be accessioned and information on vouchers given to NPS.

Task 2.10 – Compilation of Historic Data for Fishes of the Northeast Region

Parks Involved: FONE, FRHI, ALPO, JOFL, DEWA, UPDE

- **FY 2004 Accomplishments:** (1) Continued effort of ERMN staff to develop database format to assist completion of past project with Penn State University (Dr. Jay Stauffer and Tim Stecko) from an earlier cooperative agreement.
- **Scheduled FY 2005 Activities and Products:** (1) Project will be completed and final deliverables received.

Task 2.11 – Flying Squirrel Inventory

Parks Involved: DEWA

- **FY 2004 Accomplishments:** Dr. Howard Whidden of East Stroudsburg University (1) Identified suitable habitat for Northern Flying Squirrels in DEWA. (2) Field checked potential study areas and selected 8 study areas in PA and 4 study areas in NJ. (3) Installed 10 nestboxes at each of 7 study areas in PA and 1 study area in NJ.
- **Scheduled FY 2005 Activities and Products:** (1) Install nestboxes at remaining 4 study areas. (2) Monitor nestboxes bimonthly. (3) Trap study areas using Tomahawk live traps mounted on trees. (4) Prepare final report.

Task 2.12 – RTE Mammal Inventory

Parks Involved: APPA & DEWA

- **FY 2004 Accomplishments:** (1) Established cooperative agreement with Dr. Howard P. Whidden at East Stroudsburg University to inventory for threatened and endangered mammals on fee and easement lands associated with the Appalachian Trail corridor in PA, NJ, NY, and CT, and also in DEWA. (2) Conducted literature search to identify priority habitats for 20 target mammal species. (3) Applied for scientific collecting permits with appropriate state agencies. (4) Identified suitable habitat for Northern Flying Squirrels in DEWA and installed 10 nestboxes at each of 8 study areas.
- **Scheduled FY 2005 Activities and Products:** (1) Use GIS to identify potential survey sites in priority habitats for 20 target mammal species. (2) Field check potential survey sites and prepare final list of survey sites. (3) Install flying squirrel nestboxes in suitable habitat along the AT corridor. (4) Install wildlife reconnaissance cameras at survey sites to document medium and large mammals. (5) Examine talus areas for sign of Allegheny Woodrats. (6) Begin small mammal trapping program to inventory small mammals.

Task 2.13 – Bluestone Floristic Inventory.

Parks Involved: BLUE

- **FY 2004 Accomplishments:** (1) *Abies*Ecology worked on identifying specimens collected in FY03. Out of a total 565 numbered collections, 394 unique taxa have been identified. An additional 290 taxa have been identified in plots, but have not been collected yet. Collection data have been entered and error checked in an Access database. One collection trip was made to BLUE in April.
- **Scheduled FY 2005 Activities and Products:** (1) *Abies*Ecology plans to complete fieldwork for the BLUE floristic inventory in FY05. Work will also continue, as time allows, to identify all collections, resolve database issues, print labels, and mount specimens.

Task 2.14 – Digital Transfer of Aquatic Plants Survey Data

Parks Involved: DEWA & UPDE

- **FY 2004 Accomplishments:** (1) A data processing undertaking was required by Delaware Water Gap NRA (DEWA) and Upper Delaware (UPDE) to transpose field tabular and spatial data from the report document “A Survey of Aquatic Vascular Plants of the Upper Delaware River” (The Nature Conservancy, 1994), into various digital formats. (2) The survey data from hardcopy documents of the final 1994 report were transposed into digital files that are compatible with the NPS standard Relational Database Management Systems. The hand-drawn field mapping data was digitized from hardcopy paper maps into digital mapping products. These digital mapping files are in the NPS standard GIS. (3) An ArcMap (GIS) to Microsoft Access (DB) connection tool was developed and implemented to allow direct interconnectivity between the two applications
- **Scheduled FY 2005 Activities and Products:** (1) none.

Task 2.15 – Bat Inventory.

Parks Involved: ALPO JOFL FONE & FRHI

- **FY 2004 Accomplishments:** (1) Dr. J. Edward Gates and Josh Johnson of the University of Maryland Center for Environmental Science, Appalachian Laboratory, reached a cooperative agreement with the National Park Service to conduct bat inventories at 4 National Parks in western Pennsylvania. A proposal submitted to the NPS outlined objectives, timeline, protocol, budget, data analyses, and data and report products.
- **Scheduled FY 2005 Activities and Products:** (1) Dr. J. Edward Gates and Josh Johnson met with Connie Ranson to inspect FONE and FRHI for potential bat habitat as well as examine Albert Gallatin’s House for bat use. Big brown bats were found roosting behind shutters and a report with recommendations was submitted to park staff. (2) During spring 2005, Dr. J. Edward Gates and Josh Johnson will meet with NPS staff to inspect parks for potential bat habitat and discuss data, reports, and field season logistics. (3) During summer 2005, bat inventories will be conducted at ALPO, FONE, FRHI, and JOFL using capture and acoustic techniques. (4) A progress report will be submitted and data analysis will be conducted during fall and winter 2005.

Task 2.16 – Breeding Bird Inventory.

Parks Involved: UPDE

- **FY 2004 Accomplishments:** (1) A cooperative agreement was established with Dr. Richard Yahner and Lewis Grove of Pennsylvania State University to inventory breeding birds along the Upper Delaware River valley. (2) Avian surveys were completed along the park corridor during the 2004 breeding season. The project was in conjunction with the concurrent 2nd Pennsylvania Breeding Bird Atlas effort. Actual tasks consisted of a training period in the sampling protocol, followed by approximately a month and a half of data collection. (3) Several species of concern were located, including the Cerulean Warbler, Osprey, and Bald Eagle.
- **Scheduled FY 2005 Activities and Products:** (1) The 2nd Pennsylvania Breeding Bird Atlas effort is ongoing and the ERMN Coordinator is discussing additional data collection/data sharing/data transfer issues with Atlas staff. (2) Support will be allocated for an Atlas technician to focus exclusively on the UPDE river corridor as was done in FY2004. Technician will implement Atlas protocols and cover the area more extensively than would otherwise be done by the Atlas Project.

Task 2.17 – Assess the use of Cold Air Caves as Bat Hibernaculum

Parks Involved: DEWA

- **Scheduled FY 2005 Activities and Products:** (1) At Inventory Scoping Meetings held in October 2000, the Mammal working group identified talus slopes as an inventory need for DEWA. Target species included three species whose status in the park is undetermined: rock vole; rock shrew, and small-footed bat. During the summer of 2004, Bat Conservation & Management, utilizing non-I&M funds, sampled Cold Air Cave, a natural feature located at the base of extensive talus on Mt. Minsi. Five bat species were netted, including small-footed bat. John Chenger, principal investigator, believes the cave and underlying talus may provide overwintering habitat for several species. He recommended a follow-up survey with live-trapping over a period of several weeks in the autumn, when pre-hibernators would be present in large numbers ('swarming'). In addition to small-footed bat, Indiana bat (*Myotis sodalis*), a federally endangered species (presumed to occur in the park but not yet documented), would be targeted. A cooperator will be sought to accomplish this task.

Task 2.18 – Update Bog Turtle Occurrence and Distribution

Parks Involved: DEWA

- **Scheduled FY 2005 Activities and Products:** (1) DEWA completed a baseline inventory for the federally-threatened bog turtle in 2002, mapping its occurrence and distribution in the park. Fieldwork conducted in 2004 in connection with proposed development projects identified additional suitable habitat that was previously overlooked. Based on location and habitat quality, three of these sites merit follow-up with presence/absence field surveys. A cooperator will be sought to accomplish this task.

Task 2.19 – Mine Portal Surveys for Bats at Mine Openings during the Fall Swarming Period.

Parks Involved: NERI

Scheduled FY 2005 Activities and Products: (1) The objective of this follow-up inventory effort is to further determine the presence of bats utilizing mine portals including several Federal and State listed species. To accomplish this task, an investigator will be sought to quantify species composition and abundance for each mine opening with a combination of acoustical monitoring, harp-trapping, and mist-netting.

Task 2.20 – RTE Mammal Inventory and Acquisition of historic Reptile and Amphibian Data

Parks Involved: UPDE

Scheduled FY 2005 Activities and Products: (1) The objective of this inventory is to determine the presence of RTE mammal species at the Park. (2). An agreement will also be made with Randy Stechart to acquire his historic reptile and amphibian data relevant to the Park.

Task 2.21 – Reptile and Amphibian Inventory Report Completion

Parks Involved: DEWA

Scheduled FY 2005 Activities and Products: (1) The original agreement with the Wildlife Conservation Society to conduct reptile and amphibian inventories at DEWA will be modified to include additional funds to cover the greater than expected number of reports to be generated. (2) Additional funds will be made available to DEWA for park-based staff/volunteers to also assist with database and spatial data creation for this project.

OBJECTIVE 3 – Conduct other baseline inventories identified as important to Network parks and the Network Vital Signs program.

Task 3.1 – Air Quality Summary Report

Parks Involved: FONE FRHI ALPO JOFL DEWA UPDE NERI GARI BLUE

- **FY 2004 Accomplishments:** (1) NPS Air Resource Division's Tonnie Maniero prepared the Eastern Rivers and Mountains Network air quality summary report. The report was included with the ERMN Phase 1 report.

Task 3.2 – Geologic Scoping Meeting, Report, and Digital Geology Map

Parks Involved: FONE FRHI ALPO JOFL DEWA UPDE NERI GARI BLUE

- **FY 2004 Accomplishments:** (1) NPS Geologic Resource Division's Bruce Heise, Tim Connors and Sid Covington coordinated scoping meetings during late June early July 2004 at all Eastern Rivers and Mountains Network Parks (except DEWA which has already had a Geology Scoping Meeting) to discuss geologic issues, evaluate current geologic maps, and initiate development of a digital geologic map for all Network Parks. Brief scoping reports will be provided a final report and digital map will be provided at a later date.

Task 3.3 – Paleo-Resources Inventory

Parks Involved: FONE FRHI ALPO JOFL DEWA UPDE NERI GARI BLUE

- **FY 2004 Accomplishments:** (1) Alison Koch and Vincent Santucci, NPS, completed the inventory and submitted the document entitled "Paleontological Resource Inventory and Monitoring-ERMN".

Task 3.4 – Inventory and mapping of non-native plant species

Parks Involved: FONE FRHI ALPO JOFL

- **FY 2004 Accomplishments:** (1) A cooperative agreement was established with Western Pennsylvania Conservancy to inventory non-native plant species in the four National Park Units in Western Pennsylvania (FONE, FRHI, JOFL, ALPO) in conjunction with ongoing NatureServe vegetation community mapping activities. (2) All non-native plants were documented in a 50m² circular plot surrounding each vegetation monitoring plot and accuracy assessment point established for the NatureServe Mapping project. Occurrence of non-native plants was determined qualitatively by assigning an abundance value of A = abundant, O = occasional, R = rare, or NA = not present. A total of 106 non-native plant plots were inventoried for FONE, 32 in FRHI*, and 51 plots for JOFL. All inventory points were GPSed and mapped in and ArcView shapefile (additional sites will be surveyed with accuracy assessment activities planned for June 2005). (3) When large populations of non-native plant species were discovered, the "epicenters" were GPSed and mapped in ArcView. For FONE and FRHI, roads, trails, and parking lots were determined to be large reservoirs of non-native invasive plants and non-native plant species were documented and GPSed in these areas independent of community polygons delineated through the NatureServe project. Photographs were taken of each site. (4) All existing maps documenting occurrences of non-native invasive plant species at JOFL and ALPO were digitized in ArcView and will be provided to Park Management.

- **Scheduled FY 2005 Activities and Products:** (1) October 2004 – February 2005: All plot data will be entered into a spreadsheet and imported into an ArcView spatial database. Maps of GPS data will be created from locations of 50m² plots. Final maps of known occurrences will be created from GIS layers developed in step 3 (above) and sent to NPS resource managers at JOFL/ALPO for review. (2) December 2005-April 2005: Final report on non-native plant species will be developed for FONE and JOFL. The final report will include a list of exotic plant species present in each NPS unit, a list of exotic plant species to target in more detailed surveys and control efforts, a general understanding of which vegetative communities are most/least impacted by exotic plants, and recommendations for detailed assessment and control efforts (3) May 2005- September 2005: Continued 50m² plot sampling for non-native species at FRHI and ALPO with NatureServe vegetation community mapping activities (4) Ongoing: Discussion of next steps (phase 2) for WPC involvement in non-native plant mapping, monitoring.

Task 3.5 – Fire Fuels Mapping

Parks Involved: NERI GARI BLUE

- **FY 2004 Accomplishments:** (1) A cooperative agreement with NC State was established to develop fire fuels maps for Acadia National Park (ACAD), Fire Island National Seashore (FIIS), NERI, GARI, and BLUE. (2) Using leaf-on and leaf-off photography, they will develop two fire fuels maps for each park representing “complacent” and “available live fuel” scenarios consistent with work that has been done at Shenandoah National Park. (3) They will create preliminary fire fuels maps by classifying the vegetation occurring in each park into one of the 13 NFFL fire fuel models based on their recent work at BOWA and GEWA.
- **Scheduled FY 2005 Activities and Products:** (1) They expect to receive vegetation data for NERI, GARI, and BLUE in the fall/winter of 2004-2005. NERI, GARI, and BLUE field data collection is scheduled for either summer 2004 and/or summer 2005, depending on when they receive the vegetation maps for these parks. Based on that schedule, they would complete preliminary fire fuel maps for these parks by early spring of 2004. (2) Correction of the fire fuels maps for NERI, BLUE, and GARI will take place in fall 2004 and/or 2005, depending on when they are able to complete the field data collection. (3) Development of “available live fuel maps” for NERI, BLUE, and GARI will take place after the field data collection and the initial (complacent) fire fuels maps are completed.

Task 3.6 – Create Digital Photo Mosaics, Assess Positional Accuracy, Create Metadata, Format and Distribute Data

Parks Involved: ALPO, JOFL, FONE, FRHI, NERI, BLUE, GARI, DEWA, UPDE

- **FY 2004 Accomplishments:** A cooperative agreement with NC State was established to create digital orthophoto mosaics for nine national parks in the Northeast Region. NC State (1) began creating a digital orthophoto mosaic for UPDE, (2) Created digital orthophoto mosaics for NERI, BLUE, and GARI; Assessed positional accuracy of the mosaics; Created metadata for each mosaic; and formatted and distributed the mosaics and metadata. (3) created the DEWA digital orthophoto mosaic, assessed its positional accuracy, created metadata, and formatted and distributed the mosaic and metadata to the park (4) Created digital orthophoto mosaics for ALPO, JOFL, FONE, and FRHI; assessed its positional

accuracy, created metadata, and formatted and distributed the mosaic and metadata to the park (5)

- **Scheduled FY 2005 Activities and Products:** NC State (1) expects to complete the UPDE mosaic, assess its positional accuracy, and create metadata by the end of October 2004. We will prepare and submit a final report and distribute final data CDs/DVDs for the UPDE mosaic. (2) will prepare and submit final reports and distribute final data CDs/DVDs for the NERI, BLUE, and GARI mosaics (3) will prepare and submit a final report and distribute final data CDs/DVDs for the DEWA mosaic (4) will prepare and submit final reports and distribute final data CDs/DVDs for the ALPO, JOFL, FONE, and FRHI mosaics

Task 3.7 – Vegetation Mapping at New River Gorge NR, Gauley River NRA, and Bluestone NSR
Parks Involved: NERI, GARI & BLUE

- **FY 2004 Accomplishments:** (1) Final digital imagery mosaics (CIR leaf-off) and original photography (2 sets, CIR leaf off and CIR fall leaf on) were supplied by NPS in early 2004. In June, *AbiesEcology* completed a comprehensive classification of vegetation associations, based on plot data, for NERI and submitted this classification to NatureServe for review and synthesis within the NVC. A draft key to NERI vegetation types was developed and the classification was applied to observation points sampled earlier in the project and to an additional 70 GPS points collected in the summer of 2004. These points will be used in the photointerpretation process. *AbiesEcology* has begun to delineate and digitize vegetation and other land cover polygons, starting with the middle section of the park. Both sets of photographic transparencies (leaf-off and fall leaf-on) have proved useful for distinguishing different vegetation types. The flexibility and accuracy of the process would be further enhanced by having both leaf-on and leaf-off imagery available in digital format. In order to speed progress on completion of a vegetation map for NERI, less time was spent on vegetation mapping for BLUE. Data from the 55 plots sampled in FY03 were entered and error checked in the Plots database. In addition, *AbiesEcology* submitted a proposal to sample 50 additional plots in BLUE, and this task has been added to the scope of work for the project. One plot was sampled at BLUE in September 2004
- **Scheduled FY 2005 Activities and Products:** (1) *AbiesEcology* plans to complete the NERI photointerpretation and polygon delineation process by April 2005 to facilitate accuracy assessment field work by another party in summer 2005. A draft subset of this product (ESRI shapefile format) covering the middle section of the park will be provided to NPS in November 2004 for review. (2) A key to vegetation types and mapping units will be provided to NPS and the accuracy assessment contractor by April 2004. (3) *AbiesEcology* plans to sample the remaining 49 plots at BLUE in FY05. (4) A proposal to initiate Vegetation Mapping at GARI has been received from WV DNR.

Task 3.8 – Vegetation map accuracy assessment for New River Gorge National Scenic River and Bluestone National Scenic River

Parks Involved: NERI & BLUE

- **FY 2004 Accomplishments:** none
- **Scheduled FY 2005 Activities and Products:** (1) NC State is scheduled to receive the NERI and BLUE vegetation maps in FY2005. Once received they will collect and analyze field data to assess thematic accuracy of the maps and update the maps based on the field data.

Task 3.9 – Vegetation Mapping at ALPO, JOFL, FONE, FRHI, DEWA, & UPDE.

Parks Involved: ALPO, JOFL, FONE, FRHI, DEWA, & UPDE

- **FY 2004 Accomplishments:** (1) Vegetation plot data for community classification and mapping were gathered at DEWA (240+ plots), FRHI (32 plots), FONE (47plots) and JOFL (17 plots). (2) Vegetation plot data from DEWA, FONE and JOFL were entered into the PLOTS database and the data from FONE and JOFL were sent to NatureServe for crosswalking to the National Vegetation Classification. (3) The plot data from FONE and JOFL were analyzed using several multivariate statistical analyses, resulting in vegetation community descriptions and vegetation community dichotomous keys for both parks. (4) Accuracy assessment sampling was completed at FONE (63 AA points) and JOFL (33 AA points). (5) Preparation of the draft report for FONE has begun. (6) Several field trips to DEWA were taken with ecologists from the New Jersey Natural Heritage Program and NatureServe to discuss vegetation community crosswalking and rare communities in the park. (7) For UPDE, we revised our scope of work in order to coordinate with the New York Natural Heritage Program, a collaborator in the vegetation mapping project.
- **Scheduled FY 2005 Activities and Products:** Aerial photo interpretation to produce a formation-level vegetation map will be completed for ALPO and UPDE. (2) Vegetation plot sampling for community classification and mapping will be conducted at ALPO and UPDE (field work at UPDE will be completed by the New York Natural Heritage Program). (3) Vegetation plot data from DEWA and FRHI will be entered into the PLOTS database and sent to NatureServe for crosswalking to the National Vegetation Classification. (3) The plot data from DEWA and FRHI will be analyzed using several multivariate statistical analyses, resulting in vegetation community descriptions and vegetation community dichotomous keys for both parks. (4) Accuracy assessment sampling will be completed at DEWA and FHRI. (5) Final reports will be produced for the vegetation mapping projects at FONE and JOFL.

Task 3.10 – Integrate newly collected vegetation plot data (New York Natural Heritage Program, Abies Ecology, and Pennsylvania Natural Diversity Inventory) into the National Vegetation Classification (NVC) and to ensure adherence to the NPS Vegetation Mapping Program standards.

Parks Involved: DEWA, UPDE, ALPO, JOFL, FONE, FRHI, NERI & BLUE

- **FY 2004 Accomplishments:** (1) DEWA: NatureServe ecologist Sue Gawler made field visit with PNDI ecologists Greg Podniesinski and Stephanie Perles in September 04. (2) UPDE: No activity by NatureServe staff because field work does not begin until 2005 (3) NERI: NS began work on classification submitted by ABIES ecologist Jim Vanderhorst. We attempted to have a conference call to discuss cross-regional classification issues but needed to postpone to after field season. NS (Lesley Sneddon) assembled table for each type and its potential NVC placement. This will serve as focus for discussions with JV and NS ecologist Milo Pyne (of the southeast). ABIES will continue to complete the map, and will be able to amend legend when types are finalized (4) BLUE: No activity by NS this year. Field visit postponed so ABIES can continue to work on NERI (5) GARI: No activity by NS this year. Field visit postponed so ABIES can continue to work on NERI (6) ALPO: NS (Sue Gawler) attended scoping meetings with Stephanie Perles, and did a presentation on the NVC (7) JOFL: NS (Sue Gawler) attended scoping meetings with PNDI-E Stephanie Perles, and did a presentation on the NVC. PNDI-W (Ephraim Zimmerman) was subcontracted by PNDI-E to do the field work this summer (8) FONE: NS (Lesley Sneddon) received plot data from

Stephanie Perles; PNDI completed AA completed this field season (9) FRHI: no NatureServe activity this year; PNDI-W (Ephraim Zimmerman) was subcontracted by PNDI-E to do the field work this summer.

- **Scheduled FY 2005 Activities and Products:** (1) DEWA: NS will complete NVC descriptions with PNDI this year, and will produce the vegetation key. AA will be completed by PNDI staff field season 2005 (2) UPDE: NS will do field visits field season '05 with NYNHP and PNDI (3) NERI: NS to complete the NVC units with ABIES, and produce the final classification report and key (4) BLUE: NS will do field visits in field season '05 with ABIES (5) GARI: NS will do field visits in field season '05 with ABIES (6) ALPO: NS will do field visits with PNDI in field season '05 (7) JOFL: NS to work with PNDI to complete the NVC classification units (8) FONE: NS to complete NVC descriptions and key with PNDI (9) FRHI: NS will work with PNDI to complete vegetation classification, descriptions, and key.

Task 3.11 – Crayfish Inventory.

Parks Involved: ALPO, JOFL, FONE, FRHI, DEWA, & UPDE

- **FY 2004 Accomplishments:** (1) A cooperative agreement was established with Dr. Bob Carline and Dave Lieb of Pennsylvania State University to inventory crayfish species at Pennsylvania NPS units. Crayfish were chosen due to the potential of specific crayfish species serving as indicators of water quality; the need to document non-native crayfish species; especially with the potential of non-natives to alter the aquatic insect community, thus biasing standard biological metrics. The inventory will also result in updated crayfish species lists for each property. A preliminary survey plan was developed during the summer of 2004. Meetings between Park Service and University personnel will be held during the fall and winter of 2004-2005 to discuss and refine the survey plan. The survey plan will be finalized ahead of the spring 2005 sampling period.
- **Scheduled FY 2005 Activities and Products:** (1) Crayfish surveys will be conducted between March and May 2005 and again between September and November 2005 at the six Park Service properties. Each property will be visited at least once. Identification of collected specimens will begin during the summer and late fall of 2005.

Task 3.12 – Burrowing Crayfish Inventory.

Parks Involved: NERI

Scheduled FY 2005 Activities and Products: (1) The ERMN proposes to support Dr. Ralph Taylor, Marshall University, to continue his ongoing (park-funded) crayfish inventory to include additional sampling sites for burrowing crayfish. This additional work would give us a complete picture of crayfish in NERI, complementing the just completed field work on free-living and facultative burrowers. Crayfish were chosen due to the potential of specific crayfish species serving as indicators of water quality; the need to document non-native crayfish species; especially with the potential of non-natives to alter the aquatic insect community, thus biasing standard biological metrics.

Task 3.13 – Basic Climate/Weather Data Scoping and Database Development

Parks Involved: ERMN

- **Scheduled FY 2005 Activities and Products:** (1) The first step in this process is to survey park personnel and other sources for all existing data sources on climate and weather

parameters. (2) The available data will then be evaluated, organized, synthesized and (3) eventually made available through a single integrated database or interface.

B. CORE VITAL SIGNS MONITORING

OBJECTIVE 4 - Hire and retain professional staff and secure office space and facilities.

Task 4.1 – Hire and retain professional staff and secure office space and facilities

Parks Involved: ALL

- **FY 2004 Accomplishments:** (1) Office space was maintained for ERMN Coordinator and Data Manager in the School of Forest Resources at Pennsylvania State University. (2) Cooperative agreement with Pennsylvania State University for Research Associate, Jennifer Keefer, was renewed and her title changed to ERMN and MIDN NPSpecies Database Manager.
- **Scheduled FY 2005 Activities and Products:** (1) Office space will be maintained in the School of Forest Resources at Pennsylvania State University for ERMN Coordinator, Data Manager, NPSpecies Database Manager (Jennifer Stingelin Keefer), and NER NatureBib Librarian (Scott Tiffney).

OBJECTIVE 5 - Develop and maintain working and decision-making processes that engage the Board of Directors, Science Advisory Committee, technical staff, and managers of Network parks.

Task 5.1 – Board of Directors and Network Charter

Parks Involved: ALL

- **FY 2004 Accomplishments:** (1) Board of Directors membership was updated to reflect the recent changes in Park Superintendents. (2) The Network Charter was re-drafted and approved to reflect these changes and to (3) incorporate the designation of the ERMN Data Manager as the POC for NPSpecies. (4) A BOD meeting was held in January to approve the FY04 Workplan.
- **Scheduled FY 2005 Activities and Products:** (1) A BOD meeting will be scheduled in January to approve the FY05 Workplan and the ERMN Vital Signs Prioritization Process.

Task 5.2 – Science Advisory Committee

Parks Involved: ALL

- **FY 2004 Accomplishments:** (1) Park resource managers, Regional Science, Regional I&M were consulted to continue the establishment of a Science Advisory Committee (See staffing below for current membership).
- **Scheduled FY 2005 Activities and Products:** (1) A SAC meeting was held in November of 2004 with an additional meeting to be held at the March George Wright Society conference. Additional meetings will be scheduled as needed.

Task 5.3 – Site Visits with Natural Resource Staff

Parks Involved: ALL

- **FY 2004 Accomplishments:** (1) ERMN Coordinator and Data Manager made site visits to meet with Natural Resource Staff to discuss park issues, natural resource threats, current projects, and potential vital signs. Park specific follow-ups to these meetings are ongoing.
- **Scheduled FY 2005 Activities and Products:** ERMN Coordinator and Data Manager will make site visits to all Network parks to (1) review the Phase 1 report and (2) to discuss the draft list of Vital Signs and the Prioritization process. These visits will occur in January 2005.

OBJECTIVE 6 - Summarize existing data, identify, and prioritize all indicators, then develop protocols and implement programs to monitor the Vital Signs.

Task 6.1-Summarize Existing Data and Identify Potential Indicators.

Parks Involved: ALL

- **FY 2004 Accomplishments:** (1) The ERMN completed the first draft of chapters 1 and 2 of the Monitoring Plan. This report was submitted as the Phase I report and includes broad summaries of important natural resources, resource significance, and management issues. It also includes a draft list of potential indicators.
- **Scheduled FY 2005 Activities and Products:** (1) Continue to hold informal and formal meetings with Park resource managers, cooperators, and members of the Science Advisory Committee that are actively involved with natural resource management within Network Parks. (2) The ERMN Vital Signs Selection Workshop will be held in FY2005. Prior to this workshop ERMN staff will meet with each Network Park to develop and discuss the list of potential indicators. (3) A core planning team of subject matter experts will be organized to help assist in the Vital Signs Selection process. (4) The ERMN will then invite a diverse group of subject matter experts to attend the workshop to help prioritize indicators for the Network. (6) The results of this workshop will be summarized, reviewed and submitted as the Phase II Report by the end of FY2005.

Task 6.2-Develop Conceptual Models for Important Ecosystems.

Parks Involved: ALL

- **FY 2004 Accomplishments:** (1) Preliminary conceptual models were developed for three ecosystems: Large Rivers, Tributary Streams and Associated Wetlands, and general Terrestrial Ecosystems.
- **Scheduled FY 2005 Activities and Products:** (1) Further develop conceptual models for these and other important systems that elucidate system drivers, potential stressors, key components, potential indicators and how those indicators are related to potential stressors and the known or hypothesized ecological effects. (2) Potential systems include riparian plant communities, other wetland systems, tallus slopes, cliffline communities, among others. (3) A project to develop conceptual ecological models for riparian plant communities is being scoped with the PA Heritage/TNC office and the WV DNR.

Task 6.3 – Pilot study of a tributary watersheds ecosystem monitoring protocol.

Parks Involved: ALL, with pilot field work in ALPO and NERI

- **FY 2004 Accomplishments:** (1) A cooperative agreement was established with Dr. Robert P. Brooks at the Pennsylvania State University, Cooperative Wetlands Center to develop a tributary watersheds ecosystem monitoring program at ALPO, JOFL, FRHI, FONE, UPDE,

DEWA, BLUE, GARI, and NERI. (2) Stream, Wetland, Riparian (SWR), streamside salamander, and aquatic macroinvertebrate sampling for ALPO and NERI began on June 9, 2004 and was concluded on August 2, 2004. A total of 69 randomly chosen sites (18 in ALPO and 51 in NERI) were sampled. (3) Photo/preserved salamander vouchers have been examined and identified. (4) All SWR and salamander data has been entered into spreadsheets and are awaiting analysis. (5) A conceptual model for tributary watersheds was completed in September.

- **Scheduled FY 2005 Activities and Products:** (1) October-February – Complete species identification. Complete data analyses based on remote-sensing and ground-based sampling. Assist in planning and conducting VS selection workshop for developing a watershed monitoring program for ERMN units. March-May – Conduct scoping workshop. Complete final reports and/or manuscripts based on data collection and analyses.

Task 6.4 – Evaluate grassland and shrubland bird communities in cultural landscapes and develop a monitoring framework.

Parks Involved: ALL, with pilot field work at FONE

- **FY 2004 Accomplishments:** Through a cooperative agreement with the Patuxent Wildlife Research Center, USGS, a study was initiated to develop a sampling design to evaluate the long-term contribution of cultural parks to the conservation of grassland and shrubland birds, focusing primarily on the Mid-Atlantic Network (MIDN), the Eastern Rivers and Mountains Network (ERMN), and the National Capital Region Network (NCRN). The project aims to (1) evaluate grassland and shrubland habitats in NPS units of the MIDN, ERMN, and NCRN (2) examine the potential for monitoring breeding grassland and shrubland bird communities as an indicator for cultural landscape integrity and habitat quality, (3) identify the potential of these parks to support significant breeding grassland and shrubland bird communities, and provide recommendations concerning management activities that could enhance habitat availability for these bird communities, and (4) for parks supporting significant bird communities, design and establish a multi-regional grassland and shrubland bird monitoring framework to detect trends in populations that could be implemented on federal and adjacent non-federal lands. During this fiscal year, site visits were conducted to all parks where pilot projects will be implemented, including Gettysburg National Military Park from the MIDN, Antietam National Battlefield and Manassas National Battlefield from the NCRN, and Fort Necessity National Battlefield from the ERMN. As a result of the visits, a questionnaire has been developed that will be sent to the remaining parks in the three networks to help compile information for objective 1.
- **Scheduled FY 2005 Activities and Products:** (1) October 2004 to January 2005. Send out questionnaire to all parks in the three networks to compile information on the extent of grassland and shrubland habitats in the park units. Evaluate abundance and distribution of suitable habitat and draft appropriate monitoring questions. By April 2005, develop a draft monitoring protocol for testing in the pilot parks, including GETT in MIDN. By October 2005, complete pilot testing at the four pilot parks.

OBJECTIVE 7 - Implement and maintain an integrated GIS and data management program (Note: this objective is placed under Vital Signs Monitoring, however, it is equally important and integrated with the Biological Inventories portion of the program.).

Task 7.1 – NC State: Base Cartographic Data Dissemination

Parks Involved: ALL

- **FY 2004 Accomplishments:** NC State: compiled and distributed base GIS Data for ALPO, FONE, FRHI, JOFL.
- **Scheduled FY 2005 Activities and Products:** (1) NC State will prepare CDs containing base GIS data for the remaining parks--DEWA, UPDE, NERI, BLUE, and GARI.

Task 7.2- NC State: Natural Resource Inventory Database and Spatial Data Review

Parks Involved: ALL (NER)

- **FY 2004 Accomplishments:** This task involves working with I&M Program cooperators and contractors to assure that natural resource inventory data are georeferenced according to national standards and are spatially consistent with GIS data for the corresponding park(s). Specifically, for each inventory project that we review, NC State: Verify that vector data contained in the shapefiles submitted for the project line up with existing park GIS data, Review tabular data for completeness and internal consistency and assist with soliciting any missing information, Verify that complete, FGDC compliant metadata exists and create biological metadata for each dataset, and construct Microsoft Word formatted data dictionaries for each dataset. In June 2004, NC State completed a review of the Bat Inventory (P.I.: Josh Johnson) – GARI, NERI; are currently in the process of reviewing data for the Plant Inventory (Western PA Conservancy) – ALPO, JOFL, FONE, FRHI; NC State also completed a review of spatial data and associated databases for the Bird and Butterfly Inventory for ALPO and JOFL.
- **Scheduled FY 2005 Activities and Products:** (1) NC State expects to complete reviews of the studies that are currently in progress within the next three to four months. Additional inventory studies will be reviewed throughout FY 2005 as NER Network Data Managers provide data to us.

Task 7.3- NC State: GIS Database Development and Archive for Vegetation Mapping and Other I&M Products

Parks Involved: ALL

- **FY 2004 Accomplishments:** A cooperative agreement with NC State for a GIS data management system design (1) This task includes designing and implementing a data and air photo archive and access system for I&M spatial and tabular data and I&M hard copy aerial photographs for the 38 parks in the four NER networks. During this fiscal year, we developed, refined, and implemented procedures for cataloging and archiving I&M data. Since January 2004, we have archived the digital orthophoto mosaics that we created or reviewed for the NER I&M Program and 1997 aerial photographs of FIIS. We have also started to develop an online data delivery service using Oracle, ArcSDE, and ArcIMS
- **Scheduled FY 2005 Activities and Products:** (1) We will continue to catalog and archive NER I&M Program data as they are received and (2) the online data delivery service that we are currently developing will be implemented in FY 2005.

OBJECTIVE 8 - Develop and maintain strategies to share information with Network parks, scientists, and others interested in the Network's I&M program, and to contribute to general management planning, educational programs, and learning centers for Network parks.

Task 8.1 – ERMN Web-based Information Sharing.

Parks Involved: ALL

- **FY 2004 Accomplishments:** (1) An existing cooperative agreement between the NCBN and URI Environmental Data Center was modified for initial development of a Webpage for the ERMN. This webpage was also linked to the National I&M Program and will be a centralized place for Network Parks, Scientists, and others interested in the Network's I&M Program to receive information.
- **Scheduled FY 2005 Activities and Products:** (1) ERMN Data Manager assumed development, management and oversight responsibilities of the website after the initial effort by URI Environmental Data Center.

Task 8.2- ERMN Document Management Plan and Digitization Effort

Parks Involved: FONE FRHI ALPO JOFL DEWA UPDE NERI GARI BLUE

- **FY 2004 Accomplishments:** Through a new cooperative agreement with Penn State University, a full-time research associate (Scott Tiffney) began (1) development of a document management plan for the ERMN and (2) began scanning and digitizing select NatureBib documents for ERMN parks.
- **Scheduled FY 2005 Activities and Products:** (1) Scanning and digitizing of ERMN NatureBib document will continue and a web page will be created for digital document storage, (2) ERMN Resource Collection will be cataloged and organized, and (3) Quarterly progress reports are due in November 2004, March 2005, and July 2005.

Task 8.3 – Watershed-based Data Library and Ag-fields Data Library

Parks Involved: DEWA & UPDE

- **FY 2004 Accomplishments:** (1) The project consists of developing a Watershed-based Spatial Data Library for natural resource datasets. It is desired that all the data within this library be delineated by watershed influenced boundaries. The purpose of the Library will be to provide a single source for information about existing data on all of a park unit's natural and cultural resources and to combine the individual databases into a Service-wide catalog of park data as defined by watershed boundaries. (2) The relevant reports, forms and data sets were reviewed. Methods of geo-referencing these datasets, associating them with particular watersheds, and extending metadata by adding geo-references were defined. (3) A data library architecture based on the national dataset-metadata catalog (DataCat) at NPS on a watershed basis was designed. Implementation of entry forms and a web-interface were initiated
- **Scheduled FY 2005 Activities and Products:** (1) A consolidated database interface with data input and geospatial data search interface will be created. This includes the continuation and completion of the web-interface for querying data and outputting results report formats. This interface will be flexible to enable future development. (2) The metadata and a prototype of the product will be delivered conforming to I&M report standards. (3) This will include both a hard copy portfolio of the project and a digital version which will contain the programming code and associated computer files. (4) A similar project will be conducted for Ag-fields at DEWA.

Task 8.4-Contribute to General Management Planning

- **Scheduled FY 2005 Activities and Products:** (1) Northeast Region I&M staff and the ERMN Coordinator and Data Manager will continue to assist regional scientists, CESU staff,

park staff and planners with General Management Planning activities as appropriate.

C. WATER QUALITY MONITORING

OBJECTIVE 9 - Summarize existing data, identify and prioritize all aquatic indicators, and develop protocols and implement programs to monitor the Water Quality Vital Signs.

Task 9.1-Summarize existing data.

- **FY 2004 Accomplishments:** A cooperative agreement was established with Scott Sheeder and Barry Evans, Pennsylvania State University to (1) Review and summarize NPS Water Resources Division's (WRD) *Baseline Water Quality Data Inventory and Analysis (Horizon)* reports for all NPS units in the ERMN (2) Review and summarize existing 305(b) and 303(d) information on assessment and impairment status of all river reaches within the watersheds containing each NPS unit in the ERMN (3) For gauges that fall within park watersheds, compile USGS stream gauge data and summarize, commenting on changes in hydrologic flow regimes (stream stage, flow etc.) (4) Recommend tributary water quality monitoring objectives for the ERMN monitoring plan and identify gaps in water quality knowledge for Network parks (5) Compile information on state-identified outstanding waters, or special protection waters, or on other water bodies in the network not officially recognized as such, but that are thought to be both pristine and ecologically highly significant at the park or Network scale, and identify ecologically significant "stressors" that have the potential to impact water quality within network parks. (6) These products are included in the ERMN Phase 1 Report.
- **Scheduled FY 2005 Activities and Products:** (1) Many of the datasets compiled for the water quality summary reports will be added to a GIS database, and delivered to the NPS ERMN staff before June 30, 2005 (2) The feasibility of using the EPA-developed ArcView extension to estimate landscape metrics relevant to water quality will be investigated. (3). A new agreement with Dr. Evans and Scott Sheeder will be developed to further summarize existing water quality monitoring data. Tasks will include, among others, a more detailed assessment of current park-based monitoring and other non-park monitoring programs that may be important for future ERMN collaboration/coordination. The cooperators will also attend and participate in various workshops and meetings to ensure familiarity with regulatory and water chemistry based monitoring initiatives relevant to ERMN parks.

Task 9.2-Develop a Science Advisory Committee with expertise in water quality monitoring.

- **Scheduled FY 2005 Activities and Products:** (1) Develop a section of the Science Advisory Committee with expertise in water quality monitoring. See "Staffing" section below for current and proposed membership to this committee.

Task 9.3- Identify and acquire published resources on water quality monitoring

- **Scheduled FY 2005 Activities and Products:** (1) Continue to identify and acquire published resources on water quality monitoring that may assist in developing a water quality monitoring program. (2) Identify examples of monitoring templates, and strategies used by other networks, prototype parks, or regulatory agencies.

Task 9.4-Develop Conceptual Models for Important Aquatic Systems.

- **FY 2004 Accomplishments:** (1) Conceptual models for larger river systems and tributary watersheds were developed and included in the ERMN Phase 1 Report.
- **Scheduled FY 2005 Activities and Products:** (1) Based on input from the SAC and Park Managers, the need to develop conceptual models for riparian plant communities and other wetland systems (not immediately associated with streams) may be needed to elucidate system drivers, potential stressors, key components, potential indicators and how those indicators are related to potential stressors.

Task 9.5-Conduct Level 1 Water Quality Inventory.

Parks Involved: ALPO, JOFL

- **FY 2004 Accomplishments:** (1) ERMN staff and potential cooperator worked with Gary Rosenlieb, WRD, and Park staff to develop proposal to conduct a Level 1 Water Quality assessment. (2) A cooperative agreement was established with Scott Sheeder and Barry Evans, Pennsylvania State University to conduct the Level 1 project. (3) Water samples were collected at six ALPO sites and five JOFL sites. These samples have been analyzed for an extensive suite of metals, nutrients, and bacteria. The results of the chemical analysis have been entered into a database.
- **Scheduled FY 2005 Activities and Products:** (1) Two more rounds of sampling at each park will be conducted during October and November 2004 (2) The final report for this project will be completed by June 30, 2005. (3) Additional funds will be allocated (along with the utilization of remaining funds) to conduct and evaluate a benthic macro-invertebrate inventory and a fish inventory and evaluate various metrics for water quality monitoring purposes and (4) the implementation of a database for ALPO and JOFL's historic and future water monitoring.

Task 9.6-Conduct initial water quality assessment/inventory of water-sources from mine openings.

Parks Involved: NERI

- **Scheduled FY 2005 Activities and Products:** (1) NERI has identified the need to assess water quality of several sources of water originating at mine openings. A cooperator will be sought to conduct this small project.

III. Staffing

Inventory and Monitoring Staff

Matt Marshall, ERMN Coordinator

Nathan Piekielek, ERMN Data Manager

Jennifer Keefer, ERMN & MIDN NPSpecies Database Manager, Research Associate, PSU

Scott Tiffney, NER NatureBib Database Manager, Research Associate, PSU

Board of Directors

Keith Newlin, Superintendent - ALPO & JOFL

David Forney, Superintendent - UPDE

John Donahue, Superintendent - DEWA

Calvin Hite, Superintendent - NERI, GARI, & BLUE

Ken Mabery, Superintendent - FONE & FRHI
John Karish, Chief Scientist PHSO
Elizabeth Johnson, Northeast Region I&M Coordinator

Science Advisory Committee

Tonnie Maniero, NPS Air Resource Division
Alan Ellsworth, NPS NER Hydrologist
Jeff Runde, NPS NCR/NER Aquatic Ecologist
Duane Dieffenbach, USGS PA Cooperative Fish and Wildlife Research Unit
Dave Smith, USGS Leetown Science Center.
Caroline Mahan, Pennsylvania State University (Subject Matter Expert).
Rich Evans, NPS Aquatic Ecologist, Delaware Water Gap National Recreation Area.
John Karish, NPS NER Chief Scientist
Elizabeth Johnson, NPS Northeast Region I&M Coordinator
Matt Marshall, NPS ERMN Coordinator
Jesse Purvis, Fisheries Biologist, NPS NERI (*proposed*).
Greg Podniesinski and/or Stephanie Perles, Plant Community Ecologists, TNC PA Science Office (*proposed*).

Cooperators and Contractors

Vincent Santucci - NPS
North Carolina State University - Dr. Hugh Devine and Bill Slocumb
University of Georgia - Dr. Steven Castleberry
University of Maryland Appalachian Lab – Dr. Edward Gates and Josh Johnson
Marshall University - Dr. Tom Pauley
East Stroudsburg University - Dr. Terry Master
East Stroudsburg University - Dr. Howard P. Whidden
Penn State University - Dr. Richard Yahner and Brad Ross
Penn State University - Dr. Jay Stauffer and Tim Stecko
Penn State University - Dr. Robert Carline and David Lieb
Penn State University – Dr. Robert Brooks
Penn State University – Dr. Barry Evans and Scott Sheeder
USDA Forest Service - Dr. Mark Ford
USGS, WV Cooperative Fish and Wildlife Research Unit - Dr. Stuart Welsh
USGS, Patuxent Wildlife Research Center - Dr. Bruce Peterjohn
Wildlife Conservation Society - John Behler
Academy of Natural Sciences of Philadelphia - Dr. Richard Horwitz and Paul Overbeck,
NatureServe - Lesley Sneddon
Abies Ecology, Inc. - Brian Streets, Jim Vanderhorst, and Tom Vogt
PA Natural Diversity Inventory (PANDI) - Greg Podniesinski and Stephanie Perles
Western Pennsylvania Conservancy – Ephraim Zimmerman
NY Natural Heritage Program - Greg Edinger and Aissa Feldman
West Virginia DNR Natural Heritage Program – Brian McDonald
Accutech Surveying & Mapping, Inc.
Kucera International, Inc.

IV. Reports, Publications and Presentations

Schirmacher, M. R., S. B. Castleberry, K. V. Miller, and W. M. Ford. Bat habitat models for the New River Gorge, Gauley River, and Bluestone River National Park areas in the central Appalachians of West Virginia. North American Symposium on Bat Research, Salt Lake City, Utah, October 27-30, 2004.

Callahan, Kristina. December 16, 2003. "Database Template as a Geodatabase in ArcGIS." Presentation at the NPS Northeast Region GIS Workshop, December 15-16, 2003, Philadelphia, PA.

Callahan, Kristina. February 18, 2004. "Integrating ArcGIS with MS Access: Database Template as a Geodatabase." Presentation at NPS ArcGIS Developer's Meeting, February 18-19, 2004, Fort Collins, CO.

Callahan, Kristina. April 6, 2004. "NRDT as a Geodatabase and an ArcGIS Tool fo Display NRDT Data." Presentation at NPS National Data Manager's Meeting, April 5-8, 2004, Las Vegas, NV.

Colson, Thomas. February 18, 2004. "Integrating ArcGIS with MS Access: Integrating Multiple Data Sources with ArcGIS." Presentation at NPS ArcGIS Developer's Meeting, February 18-19, 2004, Fort Collins, CO.

Devine, Hugh A. December 2003. "Integrated GIS Data Model." Presentation at the NPS Spatial Odyssey Conference, December 2003, Orlando, FL.

Dragut, G., and C. Thompson. 2004. "Data and Mapping Routine for Transposing Historical Manual Field Notes and Maps in the National Park Service". Presented at the ESRI Users Conference, San Diego, CA.

Koch, A.L. and V. L. Santucci. 2004. Paleontological Resource Inventory and Monitoring, ERMN: NPS, TIC# D-265.

Millinor, William A. December 15, 2003. "Vegetation Mapping for the National Park Service Using Softcopy Photogrammetry." Presentation at the NPS Northeast Region GIS Workshop, December 15-16, 2003, Philadelphia, PA.

V. Status of Park Vital Signs Monitoring

Eastern Rivers and Mountains Network 2003	Air Quality	Water Quality	Water Quantity	Geologic Resources	Plants	Animals	Landscape Characteristics
Planning and Design							
# parks monitoring w/ NRC funding	9	9	9	9	9	9	9
# parks monitoring w/ other funding	3	6	4	0	3	8	1

Protocols Implemented							
# parks monitoring w/ NRC funding	0	0	0	0	0	0	0
# parks monitoring w/ other funding	3	6	4	0	3	8	1
Analysis/Synthesis Available							
# parks monitoring w/ NRC funding	0	0	0	0	0	0	0
# parks monitoring w/ other funding	3	6	4	0	3	8	1

VI. USGS Protocol Development and Monitoring-Related Research Needs

- Statistical review of water quality data collected under existing, park-based, Large River, monitoring programs. Assist development of appropriate bio-indicators, water quality monitoring sampling designs, and protocols based on these, and other, analyses.

VII. Budget Narrative and Budget Printouts

In FY2004, the ERMN received \$1,036,600 in funding, including Inventory funds, Monitoring funds, Vegetation Mapping funds, Water Quality funds from the WRD, as well as additional funds from WRD to conduct a “Level 1 Water Quality Summary” for ALPO and JOFL. Approximately 76 percent of these funds were used for I&M inventory, monitoring and vegetation mapping projects (73% cooperative agreements and 3% contracts). The Network Coordinator, Data Manager and the Regional I&M Coordinator were the only personnel expenses in FY2004 constituting 16% of the budget. Travel (1.8%), general operations and equipment purchases and the administrative/office support to Penn State University (3.5%) rounded out the FY2004 budget/expenditures. The Region also assessed the ERMN roughly 2% of all incoming funds.

We anticipate the authorization of \$945,171 in FY2005 which will again be assessed by the Region by roughly 2%. We estimate that roughly 68 percent of our budget will be dedicated to I&M inventory, monitoring and vegetation mapping projects. The increase on the overall travel/workshop budget reflects anticipated funds needed to conduct the ERMN Vital Signs Selection Workshop and planning meetings. We anticipate some additional one-time purchases of equipment and the I&M Program will continue to contribute funds to the School of Forest Resources at Penn State University to house and administratively support I&M staff.

A summary of our FY2004 expenditures and FY2005 budget plans is provided on the following pages.

Budget Summary

FY04 Admin Report

Network: 21 Eastern Rivers and Mountains

Category 1_Income

Description	\$ Amount	\$\$ Source	Where \$ Went	Comments
	\$655,900.00	I&M - VS Monitoring \$\$		
	\$63,000.00	WRD - WQ Monitoring		
	\$174,400.00	Veg. Mapping Program		
Level 1 Water Quality for ALPO and JOFL	\$44,100.00	WRD - WQ Monitoring		
Regional Coordinator	\$30,000.00	I&M - VS Monitoring \$\$		
	\$69,200.00	I&M - Biol. Inventory \$\$		
Subtotal	\$1,036,600.00			

Category 2_Personnel

Description	\$ Amount	\$\$ Source	Where \$ Went	Comments
NPS - Curt Musselman - STAR Award	\$200.00	I&M - VS Monitoring \$\$	NPS	
NPS - ERMN Coordinator and Data Manager Salary and Benefits	\$129,492.39	I&M - VS Monitoring \$\$	NPS	
NPS - John Karish - STAR Award	\$2,074.78	I&M - VS Monitoring \$\$	NPS	
NPS - Nathan Piekielek - STAR Award	\$1,028.27	I&M - VS Monitoring \$\$	NPS	
NPS - Vincent Santucci - Paleo-Resource Inventory	\$10,195.45	I&M - VS Monitoring \$\$	NPS	
NPS - Regional Coordinator-personnel	\$25,500.00	I&M - VS Monitoring \$\$	NPS	
Subtotal	\$168,490.89			

Category 3_Coop. Agreements

Description	\$ Amount	\$\$ Source	Where \$ Went	Comments
NC State-NERI-Photo mosaic	\$255.82	Veg. Mapping Program	Univ_Non-CESU	
NC State-UPDE-Photo mosaic	\$16,857.00	Veg. Mapping Program	Univ_Non-CESU	
University of Rhode Island - ERMN - Webpage development	\$3,955.00	I&M - VS Monitoring \$\$	Univ_Non-CESU	
NatureServe-ERMN-Veg Classification Crosswalk	\$52,406.00	Veg. Mapping Program	Other non-Federal	
USGS WV Cooperative F&W Research Unit-BLUE-Fish Inventory	\$26,740.00	I&M - Biol. Inventory \$\$	USGS	
University of Maryland-Appalachian Lab - ALPO JOFL FONE FRHI - Bat Inventory	\$21,076.00	I&M - Biol. Inventory \$\$	University-CESU	
NY Natural Heritage Program-UPDE-Veg Mapping	\$75,000.00	Veg. Mapping Program	Other non-Federal	
Pennsylvania State University - DEWA, UPDE, ALPO, FONE, FRHI, JOFL - Crayfish Inventory	\$20,000.00	I&M - Biol. Inventory \$\$	Univ_Non-CESU	

University of Maryland-Appalachian Lab - ALPO JOFL FONE FRHI - Bat Inventory	\$58,924.00	I&M - VS Monitoring	University-CESU	
Pennsylvania State University - ERMN -Water Quality Summary	\$61,740.00	WRD - WQ Monitoring	Univ_Non-CESU	
Pennsylvania State University - ALPO JOFL - Level 1 Water Quality Assessment	\$43,218.00	WRD - WQ Monitoring	Univ_Non-CESU	
NC State -ERMN - Inventory Projects Archiving	\$33,750.00	I&M - VS Monitoring	Univ_Non-CESU	
NC State-Air Photo Archive	\$14,434.18	I&M - VS Monitoring	Univ_Non-CESU	
Pennsylvania State University - ERMN - Watershed Assesments & Conceptual Model Development	\$208,379.00	I&M - VS Monitoring	Univ_Non-CESU	
Pennsylvania State University - ERMN - Scott Tiffney - NatureBib Data Manager	\$1,288.00	I&M - VS Monitoring	Univ_Non-CESU	NETN owes \$1288 to ERMN in FY05 for covering Tiffney Agreement
Pennsylvania State University - ERMN - Scott Tiffney - NatureBib Data Manager	\$3,524.00	I&M - VS Monitoring	Univ_Non-CESU	repay to NETN for FY03 projects
Pennsylvania State University - ERMN - Scott Tiffney - NatureBib Data Manager	\$146.00	I&M - VS Monitoring	Univ_Non-CESU	repay to NCBN for FY03 equipment purchase
Pennsylvania State University - ERMN - Scott Tiffney - NatureBib Data Manager	\$1,669.00	I&M - VS Monitoring	Univ_Non-CESU	repay to MIDN for FY03 projects
USGS Patuxent Wildlife Research Center- ERMN/FONE - Grassland Bird Protocol Development	\$11,825.00	I&M - VS Monitoring	USGS	repay to MIDN for FY03 projects
USGS Patuxent Wildlife Research Center- ERMN/FONE - Grassland Bird Protocol Development	\$12,650.00	I&M - VS Monitoring	USGS	
Pennsylvania State University - ALPO JOFL - Level 1 Water Quality Assessment	\$807.00	I&M - VS Monitoring	Univ_Non-CESU	
Natureserve -NCBN NETN- Veg Classification Crosswalk	\$10,982.00	I&M - VS Monitoring	Other non-Federal	to be repaid to ERMN in FY05 out of Veg Mapping Funds
Pennsylvania State University - UPDE - Breeding Bird Inventory	\$5,841.00	I&M - VS Monitoring	Univ_Non-CESU	
Pennsylvania State University - ERMN - Jen Keefer NPSpecies Data Manager	\$40,577.00	I&M - VS Monitoring	Univ_Non-CESU	
Pennsylvania State University - ERMN -Water Quality Summary	\$1,260.00	I&M - VS Monitoring	Univ_Non-CESU	
Pennsylvania State University - ERMN - Rich Yahner - Inventory Report Review	\$8,186.00	I&M - VS Monitoring	Univ_Non-CESU	
Pennsylvania State University - ERMN - Scott Tiffney - NatureBib Data Manager	\$24,298.00	I&M - VS Monitoring	Univ_Non-CESU	
Subtota	\$759,788.00			

Category 4_Contracts

<i>Description</i>	<i>\$ Amount</i>	<i>\$\$ Source</i>	<i>Where \$ Went</i>	<i>Comments</i>
West PA Conservancy - ALPO JOFL FONE FRHI - Invasive Plant Inventory	\$6,027.14	I&M - VS Monitoring	Other non-Federal	
AbiesEcology,Inc.-BLUE-Veg Mapping	\$26,393.18	Veg. Mapping Program	Other non-Federal	
Subtota	\$32,420.32			

Category 5_Operations/Equipm

<i>Description</i>	<i>\$ Amount</i>	<i>\$\$ Source</i>	<i>Where \$ Went</i>	<i>Comments</i>
Geta Dragut Support - DEWA - Watershed Project	\$9,320.00	I&M - VS Monitoring	NPS	
NPS - DEWA - Melissa Stapek Support - NPSpecies	\$1,289.40	I&M - VS Monitoring	NPS	
Pennsylvania State University - Office, support, phones	\$10,000.00	I&M - VS Monitoring	Univ_Non-CESU	
NPS - DEWA - Geta Dragut Support - Aquatic Plant Project	\$4,559.72	I&M - VS Monitoring	NPS	
Operations and Equipment	\$10,849.67	I&M - VS Monitoring	Other non-Federal	
Subtota	\$36,018.79			

Category 6_Travel

<i>Description</i>	<i>\$ Amount</i>	<i>\$\$ Source</i>	<i>Where \$ Went</i>	<i>Comments</i>
Regional Coordinator-travel	\$3,900.00	I&M - VS Monitoring \$\$	Other non-Federal	
Travel	\$15,144.72	I&M - VS Monitoring \$\$	Other non-Federal	
Subtota	\$19,044.72			

Category 7_Other

<i>Description</i>	<i>\$ Amount</i>	<i>\$\$ Source</i>	<i>Where \$ Went</i>	<i>Comments</i>
Regional Assessment of Incoming Water Quality funds	\$1,260.00	WRD - WQ Monitoring	NPS	The Northeast Region Assessed all incoming funds by about 2%
Regional Assessment of Regional Coordinator Salary & Expenses	\$600.00	I&M - VS Monitoring \$\$	NPS	The Northeast Region Assessed all incoming funds by about 2%
Regional Assessment of Incoming Veg Mapping funds	\$3,488.00	Veg. Mapping Program	NPS	The Northeast Region Assessed all incoming funds by about 2%
Regional Assessment of Incoming Water Quality funds	\$882.00	WRD - WQ Monitoring	NPS	The Northeast Region Assessed all incoming funds by about 2%
Regional Assessment of Incoming Monitoring funds	\$13,223.28	I&M - VS Monitoring \$\$	NPS	The Northeast Region Assessed all incoming funds by about 2%
Regional Assessment of Incoming Inventory funds	\$1,384.00	I&M - Biol. Inventory \$\$	NPS	The Northeast Region Assessed all incoming funds by about 2%
Subtota	\$20,837.28			

Budget Analysis

Analysis of Expenses by Where \$ Went

<i>Funding Source</i>	<i>Total \$\$</i>	<i>NPS</i>	<i>USGS</i>	<i>Other Federal</i>	<i>Univ.-</i>	<i>Univ_Non-</i>	<i>Other non-</i>
I&M - Biol. Inventory \$\$	\$69,200	\$1,384	\$26,740		\$21,076	\$20,000	
I&M - VS Monitoring \$\$	\$685,900	\$197,483	\$24,475		\$58,924	\$358,114	\$46,904
Veg. Mapping Program	\$174,400	\$3,488				\$17,113	\$153,799
WRD - WQ Monitoring	\$107,100	\$2,142				\$104,958	
Totals	\$1,036,600	\$204,497	\$51,215		\$80,000	\$500,185	\$200,703

Analysis of Expenses by Category

<i>Funding Source</i>	<i>Total \$\$</i>	<i>Personnel:</i>	<i>Coop</i>	<i>Contracts</i>	<i>Operations/Equi</i>	<i>Travel</i>	<i>Other</i>
I&M - Biol. Inventory \$	\$69,200		\$67,816				\$1,384
I&M - VS Monitoring \$	\$685,900	\$168,491	\$442,495	\$6,027	\$36,019	\$19,045	\$13,823
Veg. Mapping Program	\$174,400		\$144,519	\$26,393			\$3,488
WRD - WQ Monitoring	\$107,100		\$104,958				\$2,142
Totals	\$1,036,600	\$168,491	\$759,788	\$32,420	\$36,019	\$19,045	\$20,837

Expense Totals By Category

<i>Category</i>	<i>SubTotal</i>	<i>Percent</i>
2_Personnel	\$168,491	16.25%
3_Coop. Agreements	\$759,788	73.30%
4_Contracts	\$32,420	3.13%
5_Operations/Equipment	\$36,019	3.47%
6_Travel	\$19,045	1.84%
7_Other	\$20,837	2.01%
	\$1,036,600	

Budget Summary

FY05 Work Plan

Network: 21 Eastern Rivers and Mountains

Category

Description	\$ Amount	\$\$ Source	Where \$ Went	Comments
	\$0.00			
Subtotal	\$0.00			

Category 1_Income

Description	\$ Amount	\$\$ Source	Where \$ Went	Comments
Regional Coordinator	\$30,000.00	I&M - VS Monitoring \$\$		
NCBN NETN Payback for FY04 Natureserv Veg Mapping	\$10,982.00	Veg. Mapping Program		
NETN Payback for FY04 PennState/Tiffney Agreement	\$1,288.00	I&M - VS Monitoring \$\$		
	\$655,900.00	I&M - VS Monitoring \$\$		
	\$59,001.00	I&M - Biol. Inventory \$\$		
	\$63,000.00	WRD - WQ Monitoring		
	\$125,000.00	Veg. Mapping Program		
Subtotal	\$945,171.00			

Category 2_Personnel

Description	\$ Amount	\$\$ Source	Where \$ Went	Comments
Regional Coordinator - personnel	\$27,400.00	I&M - VS Monitoring \$\$	NPS	
ERMN Coordinator and Data Manager Salary/Benefits	\$160,000.00	I&M - VS Monitoring \$\$	NPS	
Subtotal	\$187,400.00			

Category 3_Coop. Agreements

Description	\$ Amount	\$\$ Source	Where \$ Went	Comments
WV DNR - GARI - Veg Mapping	\$128,482.00	Veg. Mapping Program	Other non-Federal	
Wildlife Conservation Society - DEWA - Herp Inventory Reports	\$16,000.00	I&M - VS Monitoring \$\$	Univ_Non-CESU	
Marshall University - Ralph Taylor -NERI - Crayfish Inventory	\$6,000.00	I&M - Biol. Inventory \$\$	Univ_Non-CESU	
Penn State - Basic Weather/Climate Data Scoping & Database Development	\$50,000.00	I&M - VS Monitoring \$\$	Univ_Non-CESU	
DEWA - Assess the Use of Cold Air Cave as a Bat Hibernaculum	\$6,000.00	I&M - Biol. Inventory \$\$	Univ_Non-CESU	
DEWA - Current Bog Turtle Occurrence and Distribution	\$12,000.00	I&M - Biol. Inventory \$\$	Univ_Non-CESU	

University of Maryland - Ed Gates - NERI - Oct 2005 Fall Swarm Bat Netting	\$20,000.00	I&M - Biol. Inventory \$\$	University-CESU
NC State - Hugh Divine - Aerial Photography Archive	\$3,806.00	I&M - VS Monitoring \$\$	Univ_Non-CESU
PennState - Rich Yahner Scott Tiffney - NatureBib	\$50,000.00	I&M - VS Monitoring \$\$	Univ_Non-CESU
PennState - Rich Yahner - Jennifer Keefer - NPSpecies	\$50,000.00	I&M - VS Monitoring \$\$	Univ_Non-CESU
PA TNC & WV DNR - Riparian Plant Communities Conceptual Models and Assessment	\$150,000.00	I&M - VS Monitoring \$\$	Other non-Federal
PennState - Rich Yahner - UPDE Breeding Bird Atlas	\$10,000.00	I&M - VS Monitoring \$\$	Univ_Non-CESU
ERMN - Vital Signs Review and Evaluation	\$30,000.00	I&M - VS Monitoring \$\$	Univ_Non-CESU
NC State - BLUE - Leaf on photomosaic	\$5,000.00	Veg. Mapping Program	Univ_Non-CESU
WV DNR - NERI - Oct 2004 Fall Bat Netting	\$1,650.00	I&M - Biol. Inventory \$\$	Other non-Federal
Academy of Natural Sciences - DEWA UPDE Fish Inventory Additional Work	\$25,000.00	I&M - VS Monitoring \$\$	Other non-Federal
NPSpecies Certification Taxonomic Experts	\$5,000.00	I&M - VS Monitoring \$\$	Univ_Non-CESU
Penn State - Barry Evans Scott Sheeder - ALPO JOFL - macroinverts & fish water quality assessment	\$9,830.00	WRD - WQ Monitoring	Univ_Non-CESU
Penn State - Barry Evans Scott Sheeder - ERMN - Water Quality Monitoring Development	\$51,330.00	WRD - WQ Monitoring	Univ_Non-CESU
UPDE - RTE - Mammal Inventory	\$12,219.98	I&M - Biol. Inventory \$\$	Univ_Non-CESU
Subtota	\$642,317.98		

Category 4_Contracts

<i>Description</i>	<i>\$ Amount</i>	<i>\$\$ Source</i>	<i>Where \$ Went</i>	<i>Comments</i>
Randy Stechart - UPDE -Acquire Historic Herp Data	\$2,000.00	I&M - VS Monitoring \$\$	Other non-Federal	
Subtota	\$2,000.00			

Category 5_Operations/Equipm

<i>Description</i>	<i>\$ Amount</i>	<i>\$\$ Source</i>	<i>Where \$ Went</i>	<i>Comments</i>
Geta Dragut - DEWA - Ag Fields GeoDatabase Development	\$2,430.00	I&M - VS Monitoring \$\$	NPS	
DEWA - Melissa Stapek - Kathy Commisso - Herp Reports	\$6,150.00	I&M - VS Monitoring \$\$	NPS	
Pennsylvania State University - office support, phones, etc	\$10,000.00	I&M - VS Monitoring \$\$	Univ_Non-CESU	
Regional Coordinator - equipment/operations	\$2,000.00	I&M - VS Monitoring \$\$	Other non-Federal	
NERI - Water Quality Assessment at several mine drainage sites	\$580.00	WRD - WQ Monitoring	NPS	
General Operations/Equipment/Supplies	\$18,634.00	I&M - VS Monitoring \$\$	Other non-Federal	
Subtota	\$39,794.00			

Category 6_Travel

<i>Description</i>	<i>\$ Amount</i>	<i>\$\$ Source</i>	<i>Where \$ Went</i>	<i>Comments</i>
Travel	\$30,000.00	I&M - VS Monitoring \$\$	Other non-Federal	
Vital Signs Selection Workshop	\$25,000.00	I&M - VS Monitoring \$\$	Other non-Federal	
Subtota	\$55,000.00			

Category 7_Other

<i>Description</i>	<i>\$ Amount</i>	<i>\$\$ Source</i>	<i>Where \$ Went</i>	<i>Comments</i>
Regional Assessment of Incoming Monitoring funds	\$13,118.00	I&M - VS Monitoring \$\$	NPS	
Regional Assessment of Incoming Inventory funds	\$1,181.02	I&M - Biol. Inventory \$\$	NPS	
Regional Assessment of Incoming Water Quality funds	\$1,260.00	WRD - WQ Monitoring	NPS	
Regional Assessment of Incoming Monitoring funds - Regional Coordinator	\$600.00	I&M - VS Monitoring \$\$	NPS	
Regional Assessment of Incoming Veg Mapping funds	\$2,500.00	Veg. Mapping Program	NPS	
Subtota	\$18,659.02			

Budget Analysis

Analysis of Expenses by Where \$ Went

<i>Funding Source</i>	<i>Total \$\$</i>	<i>NPS</i>	<i>USGS</i>	<i>Other Federal</i>	<i>Univ.-</i>	<i>Univ_Non-</i>	<i>Other non-</i>
I&M - Biol. Inventory \$\$	\$59,051	\$1,181			\$20,000	\$36,220	\$1,650
I&M - VS Monitoring \$\$	\$687,138	\$209,698				\$224,806	\$252,634
Veg. Mapping Program	\$135,982	\$2,500				\$5,000	\$128,482
WRD - WQ Monitoring	\$63,000	\$1,840				\$61,160	
Totals	\$945,171	\$215,219			\$20,000	\$327,186	\$382,766

Analysis of Expenses by Category

<i>Funding Source</i>	<i>Total \$\$</i>	<i>Personnel:</i>	<i>Coop</i>	<i>Contracts</i>	<i>Operations/Equi</i>	<i>Travel</i>	<i>Other</i>
I&M - Biol. Inventory \$\$	\$59,051		\$57,870				\$1,181
I&M - VS Monitoring \$\$	\$687,138	\$187,400	\$389,806	\$2,000	\$39,214	\$55,000	\$13,718
Veg. Mapping Program	\$135,982		\$133,482				\$2,500
WRD - WQ Monitoring	\$63,000		\$61,160		\$580		\$1,260
Totals	\$945,171	\$187,400	\$642,318	\$2,000	\$39,794	\$55,000	\$18,659

Expense Totals By Category

<i>Category</i>	<i>SubTotal</i>	<i>Percent</i>
2_Personnel	\$187,400	19.83%
3_Coop. Agreements	\$642,318	67.96%
4_Contracts	\$2,000	0.21%
5_Operations/Equipment	\$39,794	4.21%
6_Travel	\$55,000	5.82%
7_Other	\$18,659	1.97%
	\$945,171	

Appendix 1. Eastern Rivers and Mountains Network Summary of FY2004 Major Accomplishments

The Eastern Rivers and Mountains Network (ERMN) includes nine parks located in four states: New York, New Jersey, Pennsylvania, and West Virginia. The park units include New River Gorge National River, Bluestone National Scenic River, Gauley River National Recreation Area, Johnstown Flood National Memorial, Fort Necessity National Battlefield, Friendship Hill National Historic Site, Upper Delaware Scenic and Recreational River, Delaware Water Gap National Recreation Area, and Allegheny Portage Railroad National Historic Site. A relatively small segment of the Appalachian Trail in PA and NJ is included in the ERMN, but trail activities associated with the Inventory and Monitoring Program are currently coordinated by the Northeast Temperate Network.

The ERMN parks range in size from approximately 66 to 30,000 hectares and generally consist of a mosaic of forested hillsides and floodplains, streams and rivers, tallus slopes and cliffs, vernal pools and wetlands, open fields, and agriculture. The river parks contain some of the most significant water resources and water-based recreational activities in the national park system. These parks are not immune to a variety of natural and anthropogenic disturbances that affect, or have the potential to affect, park resources. Knowing the condition of natural resources and potential stressors is fundamental to protecting and managing National Park Service lands. Scientifically credible data are necessary to make decisions and support management actions. The purpose of the Inventory and Monitoring Program is to develop broadly based, scientifically sound information on the current status and long-term trends in the composition, structure and function of park ecosystems.

In FY2004, the ERMN received \$1,036,600 in funding, including Inventory funds, Monitoring funds, Vegetation Mapping funds, Water Quality funds from the WRD, as well as additional funds from WRD to conduct a “Level 1 Water Quality Summary” for ALPO and JOFL. Approximately 76 percent of these funds were used for I&M inventory, monitoring and vegetation mapping projects described below.

A. INVENTORIES

OBJECTIVES FOR INVENTORIES

1. Locate and catalog Network park natural resource documents, data sets, and spatial information and ensure such information is accurate, readily available, and entered into NPS databases.
2. Conduct inventories targeted at taxonomic groups that are below the service-wide goal of 90% verification, or are of special concern to Network parks.
3. Conduct other baseline inventories identified as important to Network parks and the Network Vital Signs program.

Summary of Major Accomplishments and Findings During FY 2004:

- *East Stroudsburg University inventory of grassland birds at DEWA* – During the project , 82

species were detected with the Field Sparrow (*Spizella pusilla*) being the most common grassland bird. Other typical grassland species, many on the Pennsylvania and/or New Jersey Endangered and Threatened Lists, were observed but were found not to be breeding within the park. These include Eastern Meadowlark (*Sturnella magna*), Bobolink (*Dolichonyx orzyvorus*), Grasshopper Sparrow (*Ammodramus savannarum*) and Savannah Sparrow (*Passerculus sandwichensis*). Other rare species observed during the course of the project include Yellow-breasted Chat (*Icteria virens*) and Orchard Oriole (*Icterus spurius*). Rare species observed, some of which are new for the park, include Virginia Rail (*Rallus limicola*), Sora (*Porzana carolina*), Common Moorhen (*Gallinula chloropus*), Whip-Poor-Will (*Caprimulgus vociferous*), Golden-winged Warbler (*Vermivora chrysoptera*) and Yellow-breasted Chat (*Icteria virens*).

- *University of Georgia inventory of bats at NERI, GARI, BLUE* In total, eighty one bats of nine species were captured in the 2004 survey. Species of interest included Silver-haired Bat (*Lasionycteris noctivagans*), Small-footed Bat (*Myotis leibii* - lactating female), and Hoary Bat (*Lasiurus cinereus* - lactating female).
- *The ERMN funded the West Virginia Cooperative Fish and Wildlife Research Unit to conduct a fish inventory at BLUE* - Species range extension documented for mountain redbelly dace (*Phoxinus oreas*), Non-native darters (rainbow darter and Roanoke darter) are well established within BLUE. The inventory also discovered an introduced population of catfish (marginated madtom, *Noturus insignis*) within BLUE.
- *The ERMN funded the Academy of Natural Sciences to conduct a fish inventory at DEWA and UPDE* – Sampling in 2004 produced the first report and documentation of the non-native “mosquitofish” (*Gambusia affinis*) in DEWA. This species has recently been shown to be invasive and a significant predator of some native fish species. The fact that mosquitofish were found in the Flatbrook, a stream supporting a major recreational trout fishery and numerous native fish species, as well as other important species, increases the importance of documenting the distribution and abundance of mosquitofish in this drainage and in DEWA.
- *The ERMN funded the Western Pennsylvania Conservancy to conduct an invasive plant inventory at ALPO, JOFL, FONE, FRHI* – Interesting results include: Areas of relatively high quality white oak and red oak forest identified at FONE where no invasive species were present within the 50m² plot; Japanese stilt grass (*Microstegium vimineum*) was determined to be a significant threat to native herbaceous species along the floodplain of the Monongahela River at FRHI. However, it was not present at JOFL and its abundance was negligible at FONE. Management of this invasive species at FONE and JOFL may be possible with minimal effort, but considerable measures will have to be taken at FRHI for its control; Other high-profile non-native invasive plant species include bush honeysuckle (*Lonicera morrowii*), Japanese barberry (*Berberis thunbergii*), multiflora rose (*Rosa multiflora*), and tree-of-heaven (*Ailanthus altissima*); In general, at FONE and FRHI, areas that were most likely cleared for agriculture (rangeland or cropland) exhibited a higher coverage of non-native shrub and herbaceous plant species than areas than sites have been managed as forests.

- *The ERMN funded Abies Ecology to conduct vegetation community mapping and floristic inventory at BLUE – A population of the state rare *Lonicera canadensis* (fly honeysuckle) was relocated in BLUE. This occurrence is threatened by pedestrian trampling, deer herbivory, and invasion of its habitat by the exotic honeysuckle, *Lonicera morrowii*.*

B. VITAL SIGNS MONITORING

OBJECTIVES FOR VITAL SIGNS MONITORING

The network received \$655,900 in FY04 to complete Phase I of the development of its Vital Signs Monitoring Plan. This process involve extensive research about park ecosystems, past and current monitoring, generation of candidate vital signs and monitoring questions, conceptual model development, and preparation of a Phase I Monitoring Report. In FY05, the Eastern Rivers and Mountains Network will again receive \$655,900 to prioritize its candidate vital signs, and to prepare Phase II of its monitoring plan.

4. Hire and retain professional staff and secure office space and facilities.
5. Develop and maintain working and decision-making processes that engage the Board of Directors, Science Advisory Committee, technical staff, and managers of Network parks.
6. Summarize existing data, identify, and prioritize Vital Signs, then develop protocols and implement programs to monitor the Vital Signs.
7. Implement and maintain an integrated GIS and data management program (Note: this objective is placed under Vital Signs Monitoring, however, it is equally important and integrated with the Inventories portion of the program.).
8. Develop and maintain strategies to share information with Network parks, scientists, and others interested in the Network's I&M program, and to contribute to general management planning, educational programs, and learning centers for Network parks.

Summary of Major Accomplishments and Findings During FY 2004:

- *The Network continued its cooperative agreement with Penn State to maintain the services of two full time research associates for data acquisition and document management purposes.-* The Eastern Rivers and Mountains Network now has Jennifer Keefer as a full-time NPSpecies Database Manager and Scott Tiffney as a fulltime Librarian for the Northeast Region I&M Networks. They continue to compile, edit, and enter existing and legacy data into the WASO databases (NPSpecies, NatureBib). The agreement was extended to include a comprehensive document management, scanning, and archiving effort.
- *The Network continued its cooperative agreement with Dr. Richard Yahner at Pennsylvania State University to review incoming Inventory Reports to help ensure the scientific integrity of these projects.*
- *The Network also had a Paleontological Resource Inventory and Monitoring project completed.-*Allison Koch and Vincent Santucci of NPS completed the Peleontological Resource Inventory for the ERMN and documented numerous interesting and significant findings including: the first published report of invertebrate fossils from the Coal Measures

(Pennsylvanian) of North America; a new shark tooth, *Petalodus allegheniensis*, from specimens found near the Bens Creek Station within the Glenshaw Formation near ALPO; nonmarine Ostracodes from the Bluestone Formation in Virginia and West Virginia that are of particular importance because they represent the oldest record in North America of particular adductor-muscle-attachment scar patterns; and rare Dipleurozoa near DEWA (jellyfish-like fauna including *Rutgersella delawarensis*). The cover photo of the report (included below) was of a *Neuropteris pocahontas* specimen from the Pocahontas Formation of West Virginia. *Neuropteris pocahontas* is abundant in this formation and is represented by fronds, pinnules, male reproductive bodies, and seeds. This plant species is used as a marker fossil to help paleontologists delineate the bottom section of the Pennsylvanian system. New River Gorge National River deposits contain these fossil remains. Additional fossil plant material has been recorded from multiple parks within the Eastern Rivers and Mountains Network.

- *The Network continues to meet with the Board of Directors and the Network Science Advisory Committee was formed*, composed of resource managers, Regional and Network I & M staff, and scientists at the USGS Pennsylvania Cooperative Fish and Wildlife Research Unit and the USGS Leetown Science Center. The Eastern Rivers and Mountains Network has consulted with these members individually and will hold the first joint meeting in Dec 2004.
- *The Network continued its productive and innovative collaboration with the staff of Dr. Hugh Devine at North Carolina State University*—Included among multiple projects are: a proposed review procedure for digital vegetation maps of National Parks has been developed and field-tested. This nationally unique methodology will be proposed as the new data acceptance standard for the National Vegetation Mapping Program, which is a joint effort among multiple federal government agencies, numerous universities, and various offices of The Nature Conservancy and other conservation groups; and: a prototype data viewing and delivery service for natural resource map data for the Northeast Region National Parks has been designed and implemented. This system will allow park resource data to be viewed on the web and downloaded for Geographic Information System analysis. Also it will allow the potential seamless integration of base natural resource information (i.e., streams, wildlife habitat, vegetation, etc.) with other important data (i.e., historic sites, archaeological data, fire plans, maintenance records, etc.) for enterprise level planning and management as well as visitor use.
- *The Network was also able to utilize the skills of an NPS Partner to conduct an innovative data and mapping routine for transposing historical manual field notes and maps in the National Park Service.*—The National Park Service's DEWA Partner (Geta Dragut) developed a technique for transposing historic manual field notes and maps into contemporary spatially-related geodatabases within an ArcMap to MS-Access interface. Its first employment was to a 1994 Nature Conservancy's Aquatic Vascular Plants Survey along a 122-mile stretch of the Upper Delaware River on the borders of Pennsylvania, New York, and New Jersey. This process will ease the task of managers in bringing into a functional and standard format the mounds of backlogged field reports that are in the Park Service's libraries. The procedure will give new life to valuable assets that for years have been unusable because of the varied, non-practical, and non-standard formats that the information resides in. A paper on this topic

was also presented at the 2004 ESRI International Users Conference in San Diego, California.

- *The Network established a cooperative agreement with Penn State University for a full time research associate to assist the network Coordinator in data acquisition and document management purposes.*- Jennifer DeCecco was highly recommended and was hired as a research associate under this agreement. She compiled information on the important natural resources to the parks, management issues, and threats/stressors to the park's ecosystem and existing monitoring programs. This data will be used to generate monitoring questions and identify the "vital signs" or indicators of ecosystem health that will be considered in developing the long-term monitoring program.
- *Network staff and research associate Jennifer DeCecco visited all parks in the network to discuss important natural resources to the parks, management issues, existing monitoring programs, and threats/stressors to the park's ecosystem. The Network also conducted comprehensive literature research (including park General and Resource Management Plans) about park ecosystems, threats, and existing monitoring in the network parks. These scoping meetings and literature reviews were summarized and incorporated into the Phase 1 Report.*
- *The Network entered into a cooperative agreement with Dr. Robert Brooks of Pennsylvania State Universities Cooperative Wetlands Center to develop draft conceptual ecological models of tributary stream watersheds and associated wetlands. Dr. Brooks has been a leader in this field and has contributed greatly to the Network. Dr. Brooks will also assist the Network in developing draft vital signs for the Vital Signs Prioritization Workshop, facilitate this workgroup at the workshop, and write a summary.*
- *The Network Coordinator worked closely with Dr. Ken Lubinski, USGS Upper Midwest Science Center, to modify existing conceptual models of Large River Ecosystems to make them relevant to the issues of the Eastern Rivers and Mountains Network Parks. These models led directly to the draft list of Vital Signs that will be reviewed by the Network Science Advisory Committee and eventually presented at the Vital Signs Prioritization Workshop.*
- *The Network Coordinator worked closely with Tonnie Maniero, NER Air Quality Ecological Effects Coordinator, to identify air quality monitoring stations near the Network parks as assess the relevance of such information to the park. This information was reported and included in the Network Phase I Report as an appendix.*
- *A cooperative agreement was established with Scott Sheeder and Barry Evans, Pennsylvania State University to review and summarize NPS Water Resources Division's (WRD) Baseline Water Quality Data Inventory and Analysis (Horizon) reports for all NPS units in the ERMN, review and summarize existing 305(b) and 303(d) information on assessment and impairment status of all river reaches within the watersheds containing each NPS unit in the ERMN, for gauges that fall within park watersheds, compile USGS stream gauge data and summarize, commenting on changes in hydrologic flow regimes (stream stage, flow etc.), recommend tributary water quality monitoring objectives for the ERMN monitoring plan and identify*

gaps in water quality knowledge for Network parks, and compile information on state-identified outstanding waters, or special protection waters, or on other water bodies in the network not officially recognized as such, but that are thought to be both pristine and ecologically highly significant at the park or Network scale, and identify ecologically significant "stressors" that have the potential to impact water quality within network parks. These products are included in the Network Phase 1 Report.

- *After visiting each park and holding park-specific scoping meetings, reviewing relevant literature, and contacting appropriate researchers the network prepared a Phase I Monitoring Report in 2004.* The report contains detailed descriptions of the parks, their ecosystems, management histories and concerns, a summary of the network Vital Signs Scoping Process, and draft conceptual ecological models of large river systems, tributary watershed systems, and terrestrial systems. The report also includes 8 appendices describing specific topics in greater detail, including park natural resource profiles, air quality monitoring considerations, water quality summaries, past and present monitoring programs, and a table describing of the network scoping meetings that were held.
- *In 2004, the Network developed a webpage that will serve as the primary means of information sharing among park staff, cooperators, the Board of Directors, Science Advisory Committee and the public. Detailed information about our program, staff, parks, and projects will be provided in a readily accessible and informative manner.*